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FACTORS THAT RELATE THEMSELVES TO SUCCESSFUL SURGERY.*

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HATTIESBURG, MISS.

If we define surgery as that branch of medical science that relates itself to the removal of Nature's handicaps, it then becomes obvious that all surgery to be effective must correctly interpret the patient's pathology, and in its broadest acceptation contemplate a cured patient. That surgery has not always been made to conform to the above standard is not due so much to a lack of response to the individual operation. When surgery disappoints, and it often does, it is frequently because the surgeon loses sight of the fact that man is an intricate piece of machinery that may have many of its parts defective at the same time. Repair of the individual part is necessary, but unless all the deficiencies are corrected the machine cannot be expected to approach the maximum of efficiency. It is of prime importance that a careful survey be made in every case, when possible, before any program, either medical or surgical, is adopted. Such an examination often develops facts that make it necessary to transfer a case, that on superficial examination is apparently surgical, to the medical group, or vice versa.

It is therefore apparent that to qualify as a good surgeon one must also be a good internist. We occasionally hear surgeons boast of their ignorance of internal medicine; but I believe you will agree with me that the man whose prowess is confined to surgical technic may be a good mechanic but is not a safe surgeon.

The mere fact that an examination reveals surgical pathology does not always make operative interference imperative. If the patient's expectancy is low, if there is a narrow margin of resistance, from whatsoever cause, or, finally, if the correction of the individual defect cannot be expected to restore the patient to normalcy, then the surgeon should at least acquaint the patient or his family with all of the facts before considering an operation.

Dr. John B. Murphy once assured the speaker that a surgeon should never lose a patient as the result of an operation. It was his opinion that if a comprehensive study of the patient's problem was made and proper refinement of judgment was exercised with reference to the patient's resistance, only those cases that should recover would be subjected to surgery. While we know, of course, that such an ideal is utopian, it is at least an end toward which we should strive.

Dr. Maurice H. Richardson, whose candor and conservatism were an inspiration to all who knew him, was emphatically opposed to operating on moribund patients.

It is argued by some that if a patient will probably die without an operation the surgeon is warranted in resorting to the knife. This attitude is only tenable when

*Chairman's Address, read before the Section on Surgery, at the Sixty-second Annual Session of the Mississippi State Medical Association, Gulfport, May 15, 1929.

there is an estimated reserve that will be adequate after subtracting the loss incident to anesthetic and trauma.

I am reminded of a member of our profession, 'age seventy-two, who in early years had two or three abdominal operations, as a result of which he has numerous adhesions and occasionally symptoms of obstruction. It is possible that some day the obstruction will become complete and he will lose his life. On the other hand, an operation, under the most favorable conditions, would be too hazardous to enthuse the most intrepid surgeon. I have therefore advised my old friend to make his final exit over the medical route.

A woman beyond sixty years was admitted in the South Mississippi Infirmary last week with evidence of complete common duct obstruction. The antecedent history, plus a careful survey of the case at present, warranted a diagnosis of malignancy involving gall-bladder primarily and extending to liver and ducts. As a matter of scientific interest we felt disposed to do an exploratory operation, and as a young surgeon we followed that plan with the fatuous belief that we might per chance palliate the condition. Today we know that such a procedure would only add to the discomfort and in many instances hasten the fatal issue.

The above two cases are illustrative of a large group that confront a busy surgeon during a period of years and lend emphasis to the importance of thoroughness and conservatism. As a result of more thorough diagnostic study we find that many of our patients have a multiplicity of pathology. This may prompt us to embark on a corrective program that is too ambitious. Again the measure of the patient's resistance should be the determining factor. When in doubt the chances are always in favor of a conservative program.

Whether due to the stress and tension of our twentieth century civilization or to other causes, there is a greatly augmented group of psychics presenting themselves to the clinics for treatment. Given two patients with equal pathology: One moves placidly along. She experiences some discomfort of course from her disability, but her relationship to home and society is not upset. The other patient becomes the victim of a multiplicity of nervous reactions that disqualify her for the performance of any of the exacting requirements of life. In the one corrective surgery restores normal balance, while the other, if improved at all, finds no permanent advantage flowing from the operation. If, per chance, she no longer complains of pain in the operative field, she develops a new symptom complex more dramatic than that which obtained prior to her operation. Years pass, other surgeons attack her problem, and finally she becomes a confirmed neurasthenic. But, as she haunts the office of doctor after doctor, she insists that all her trouble dates to her last operation.

I venture the assertion that every surgeon of experience has had patients who belong to this group. They often come with definite pathology, of course, and at first it was thought their pot pouri of symptoms would vanish following proper surgery. In many instances they did, but as soon as confronted with new problem, either mental or physical, the entire structure tumbles down again.

The answer to all this is that there are many who have unstable nervous systems. Oliver Wendall Holmes once said, "Man is an omnibus in which all his ancestor's ride." Unfortunately, our patients do not bring their family trees containing elaborate case histories of their ancestors when they consult us. If they did our advice would more frequently be tinctured with conservatism, and surgery would be attended with better end results.

It is my conviction that the surgeon of today, despite the wider range of his activity, has a keener appreciation of his obligation to society than ever before and

therefore is conscious of the importance of proper study of his case, which, in its final analysis, means that we are entering upon an era of conservatism and efficiency that will command the confidence of the most skeptical layman.

OUR DEBT TO MEDICINE OF YESTERDAY; OUR OBLIGATION FOR TOMORROW.*

B. S. WALLER, M. D.,

SILVER CREEK, MISS.

Permit me to express my appreciation for the honor you have shown me by having elected me president of this Association for this year. I want to express my appreciation also to our very efficient secretary, Doctor Markette, whose untiring efforts have accomplished what ever has been done.

In selecting a subject for an address for this occasion, I have selected one that is already common knowledge to you all: Our debt to medicine of yesterday, our obligation for tomorrow.

The practice of medicine is probably the oldest profession in the world. Our earliest definite information comes from Egypt 3000 years B. C. Scientific medicine, began with Hippocrates about 460 B. C. The Hippocratic Oath has a real value to modern as well as ancient medicine. I have not the time nor the desire to trace medicine through the nineteenth century, but with two important problems of diseases—cellular pathology, developed by Virchow, and its cause—microbic activity, which Pasteur demonstrated, the real science of medicine began.

All through the ages the faithful men of medicine have stood for education, culture and refinement. The title, Doctor, means a teacher; and the physician who excels is performing the task of a teacher every day.

The progress of the world, in every department of human endeavor, seems in this generation to have received a wonderful stimulant and many amazing things have been accomplished; but human nature is so constituted that the miracles of yesterday are regarded as commonplace today; so the progress of medicine and surgery is accepted as a matter of fact and little thought is given to the men who devoted their time and often sacrificed their lives in an effort to serve their fellow man and make the world a safer place in which to live.

Many of the discoveries of medicine read like fiction. When the microscope first enabled us to comprehend the fundamental cellular structure of the body, the key to the ultimate interpretation of life was put into our hands. When Pasteur discovered the existence of cellular organisms capable of attack on human cells, he gave to our science its first knowledge of the cause of disease, the science of bacteriology was then born; through it pathology found a new interpretation and became a vital study. The culture tube and the reagent brought chemistry into the field and through the three, the laboratory became the center of medical investigation. Short though the time has been since the birth of these sciences, their contribution to human welfare has been of untold value. With them came the knowledge of the prevention of disease which from the lives saved and from a monetary standpoint, is beyond computation.

Cholera, which invaded the nations of the earth has become only a name.

We can not compute the number of children whose lives have been saved from diphtheria by the use of antitoxin, and better still, those immunized from this terrible disease by the use of toxin-antitoxin, to say nothing of the grief and

*Annual Address of the President; Tri-County Medical Society, Brookhaven, Miss., December 10, 1929.

anguish lifted from the hearts of the parents of the world.

Smallpox, another horrible disease, through vaccination, will soon be gone. Typhoid fever, years ago, claimed its thousands; today, through modern sanitation and preventive inoculation it is fast disappearing and its existence will soon be a disgrace to a community.

We are indebted to the physicians, especially to Drs. Reed, Gorgas and their fellow helpers for discovering the cause and stamping yellow fever from the earth. One afternoon when Dr. Gorgas walking into the dissecting room at one of the government hospitals, in the Canal Zone, where a number of surgeons were at work on a cadaver, that had died of yellow fever, said: "Take a good look at this fellow, boys, for it is the last case of yellow fever you will ever see." This statement, though doubted then, has become true and Dr. Gorgas is known as the "world physician". The United States was able to build the Panama canal as a result of this discovery; this strip of land was converted into one of the healthiest spots of the world, and the canal has rerouted the commerce of the world.

Our predecessors, the men of yesterday, have wrought well; let us endeavor to emulate their example by carrying on in a manner commensurate with their accomplishments.

Any medical organization that is just marking time is retrogressing. Altruism in America while not in a flourishing condition, is far from being extinct. We know that it is one of the fundamentals on which the medical profession is founded and I hope it will continue to ramify through medical practice, softening and blessing its administration to mankind.

With the inspiration of such a heritage we should face tomorrow with confidence and determination to do our duty.

This is a different age, less romantic, but filled with problems to be solved.

The pioneers faced uncharted fields along untrodden paths. They surmounted every hardship and left the way fairly well blazed.

Progress must be our slogan. The doctor of today faces tomorrow a different man from the one who entered medicine fifty years ago. Then his equipment was meager, his only resources were his faculties of deduction derived from his own experiences. Today, he must be better educated, and aided by the knowledge of yesterday, with the resources that science gives, his responsiblity as well as his opportunities are increased; he must resort to the laboratory and the hospital. Along with better education of the physician, the people have been enlightened and expect a new standard.

The family physician has ever been the bulwark of medicine. His has been the labor of love and superb endeavor to combat disease; confronted with the most desperate conditions he has with rare resourcefulness risen to his responsibilities. The intrepidity of the country doctor in the management of the emergencies of accident and disease, the perils of childbirth and the mastery of conditions under the most adverse circumstances is marvelous. His calling exacts the utmost that man can give, knowledge, a steadfast hand, exquisite judgment and skill, to be put forth not at any self chosen moment but daily at the need of humanity. He has to know how to gild the gloom of affliction's couch with the silver lining of hope. While the war trump, the muffled drum, the measured tread of armed men and the musket peeling over the grave, honor the death of the soldier, the physician who meets his death battling for truth passes to an inconspicous grave, unhonored and mourned only by a few who knew his worth.

Medical science has advanced so rapidly that it has to be rewritten every twenty

years, so that we find ourselves trying to forget those things we once knew. As pointed out by G. K. Dickerson, "Should Henry Wark Beecher come back to his pulpit, he would find his preaching just as understandable and effective as in his day. Should Chief Justice Marshall return to the bench, he would find the law unchanged and his decisions acceptable; but should the most competent physician or surgeon of fifty years ago return, he would be at a loss, for he would be obliged to study medicine over; the surgeon would not be able to do the ordinary work required in the operating room."

The medical student of a decade ago was not taught preventive medicine; he was expected to cure the sick. He studied physiology, pathology and therapeutics, our faith was in drugs. Now, we know if people are to live longer and better, fewer drugs, better sanitation, fresh air, sunshine and diet must be our slogan; these truths must be taught and the fact that health is no longer a game of chance stressed. Retaining the benefits of these innovations, and making further progress against disease, depends alike upon the dissemination of knowledge concerning sound, scientific methods.

Our obligation for tomorrow hinges around prevention of disease. The rural doctors are getting fewer. In my county in 1915 there were twenty practicing physicians, today there are five. The people must be taught in the clearest manner possible, the fundamentals underlying health and disease; methods of preventing disease and the necessity of periodic health examinations. The early degenerative conditions of the vital organs, the heart, the kidneys and the brain must be detected while remedial measures might be effective. The span of life has been materially lengthened during the past decade, through the prevention of infant mortality. Preventive medicine has made wonderful progress in recent years. This was demonstrated in the efficiency of the American army during the World War. Community health is getting in advance of the health of the individual. Too little attention is paid to those who are apparently in good health. Many people are shocked, when resting securely in the supposed enjoyment of good health, to find that an examination for life insurance revealed some unsuspected disease, that could and should have been easily detected long ago when a cure or, at least, a prolongation of life could have been attained.

Eternal vigilance, through the physician, is the price of lengthened life in the middle aged; we are facing today an increase in cancer, kidney and heart disease in this class of patients.

I am convinced that the physical basis for much of our inefficiency as well as illness and death from disease of adult life, comes from malnutrition or from improper eating. The properly nourished individual rarely develops tuberculosis, pellagra or other similar diseases; the well nourished person is less susceptible to the acute infectious diseases like influenza, pneumonia and many others. When the people understand the known facts regarding diet and nutrition and live accordingly, many of the health problems will be solved. There will be a remarkable reduction in the germ diseases and chronic digestive troubles as well as diseases of the heart, blood vessels and kidneys. If the adults of today will put into practice knowledge of food and vitamin values that are available to them, and their children are taught this, years can yet be added to the coming generation. Nutrition, has largely been responsible for bringing tuberculosis from first to fifth place among the causes of death in the United States. Who among us can realize what this has meant in bettering the conditions of life of the American people? This accounts largely for the fact of prosperity and standard of life unequaled by that of any other country. Disease has been the greatest single factor in producing proverty and misery.

Prevention, being my central thought in this paper, another problem of vast importance economically, and socially confronts us in the care and prevention of mental diseases. Progress in handling these lies in the general diffusion of psychiatric knowledge among the general profession, so that the patient will receive treatment months and years before the present stage at which they usually get treatment. This leads us to consider the pre-psychotic period. These tendencies can be observed in some cases even before the school age; these phobias, neuroses and psychoses of childhood are going unnoticed and with no concern. If a survey of our school children was made, a large number would be classed as nervous and excitable. The moron could often be recognized before the period of delinquency. I believe the psychiatric study of school children would prevent many nervous, unstable children from becoming the neurotic adults of tomorrow. We are confronted with the question—How can this group of morons, feeble minded, mentally unfit be prevented from propagating their kind into the coming generation? Our daughters are not only not being educated in such a way as to become good mothers, but are being educated not to become mothers at all. If this condition continues, the bulk of the future generation must come from the feebler minded element of the race, which propagates rapidly.

More than half of the hospital beds are occupied now by individuals suffering from some mental condition. A large per cent of the inmates of our penal institutions are mental derelicts. The individual, family and state loss from this class of citizens can hardly be estimated; they require institution and hospital care; they are incapacipated just as much as if they were sick with some physical disease. An obligation lies in trying to prevent the increase of this class of citizens. As physicians, we should stress the necessity of sterilization of the low grade moron and mentally unfit. Some one has said:

"We talk of our breed of cattle,
And plan for a higher strain;
We double the food of the pasture,
And heap up the measure of grain,
To better the barn and pen;
But what are we doing, fellows,
To improve the breed of men"?

Medical students should receive more thorough instruction in psychiatry in our medical schools having for its object the institution of overdue reforms in the handling and treating of this class.

I believe the full time health unit, stressed by our efficient State Board of Health could be made to function along this line. The doctor in charge having received special training along this line, could detect the sub-mental school child, the border-line cases of insanity, and other conditions in need of treatment, especially the poorer class who, usually are denied treatment in the early and hopeful stage. This health unit might see and supervise discharged patients from insane hospitals, help them to find employment, and advise them when difficulties, domestic, financial and otherwise confront them.

I am persuaded that this would lessen the number of suicides that have been of late claiming a large class of our good citizens.

The present method of handling the mentally unbalanced patient is deplorable. Jails and asylums are full. To reach the latter institution, these mentally sick people have only one route: police station, sheriff, jail, court. He is branded as "crazy," committed to the asylum. By the time he reaches this institution he is superstitious, non-cooperative and rebellious. The institution physician is burdened with three times as many patients as he should have under his care; he is given a hurried examination, his conduct is noted and he is left largely to associate with the chronic insane and he loses hope and interest.

Let us hope that Mississippi will soon have a new hospital where these patients can receive modern and effective treatment under the efficient staff that labors at present under such disadvantages. As physicians, let us ever be ready to serve. Here is our challenge and our goal; a prediction by a French philosopher, in the seventeenth century: "If ever the human race is raised to its highest level, intellectually, morally and physically, the science of medicine will perform that service."

PLANS AND FUNCTIONS OF THE NEW HUTCHINSON MEMORIAL BUILDING.*

C. C. BASS, M. D.,†

NEW ORLEANS.

The terms of the bequest of the late Mr. Alexander Hutchinson to the Medical Department of Tulane University provided for a memorial building to be known as the Josephine Hutchinson Memorial. The purpose for which the Memorial was intended is stated in Mr. Hutchinson's will as follows:

"I give the balance of my estate, real and personal, to the Tulane University of Louisiana, for the sole and exclusive benefit of its medical department; the object of this bequest is to create a fund to be used in increasing the efficiency of the medical department of the Tulane University of Louisiana, as a medical school and to contribute to its usefulness and beneficence in ministering to the ailments, injuries and other physical infirmities of the suffering and destitute poor of all races, ages, sexes and nationalities."

The following quotation from the bequest indicates the wish of the donor to provide also for a limited number of hospital beds whenever sufficient funds should be available for their maintenance:

"The aforesaid grounds and buildings to be used in the establishment of a free clinic or dispensary and for a hospital, to include in its wards such a number of free beds (also for the destitute poor) as in the judgment of the faculty may be available within the limitation of this fund."

Since the Hutchinson estate was settled and the fund became available it has been invested partly in the present Hutchinson Memorial Building and grounds which, it has always been understood, was only temporarily serving the ultimate purpose of the bequest; in revenue producing investments for the support, in part at least, of the laboratories and clinics that have been conducted in the building; and in other real estate which was considered needful for the promotion of the ultimate erection and operation of a memorial, more fully in accordance with the wishes and intention of the donor.

Through judicious investment and administration the potential value of the Hutchinson Fund has increased considerably but during the same time the cost of the erection of buildings and their operation, especially as clinics, hospitals and medical schools, has also greatly increased. Under the circumstances, it has seemed necessary to postpone the erection of a new and permanent Hutchinson Memorial until recently, when the General Education Board agreed to give $1,250,000 for the erection and equipping of such a building, without the necessity of drawing upon the Hutchinson Fund, all the income from which may now be used towards the operation and maintenance of the Memorial in accordance with the wishes of the donor. Although the income at present is not sufficient to provide for the operation of the building to its full capacity, it will be possible to make a good start, at least.

The purpose of the gift of Mr. Hutchinson was the promotion of medical education and the benefit and relief of the sick, and the chief purpose of the General Education Board, in its gift, was the promotion of medical education and advancement of medical knowledge in this community. All plans for the building and activities to be carried on therein have been made with these objects in view. A very high com-

*Read before the Orleans Parish Medical Society, October 28, 1928.

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pliment was paid to the Tulane School of Medicine by a representative of the General Education Board, who, after a thorough investigation of our work, made for the purpose of ascertaining the merits of our appeal for a donation for this building, stated that we were accomplishing more on a mere "shoestring" than many other schools were accomplishing with much greater resources at their disposal.

Ward or bed patients in a hospital represent the severe cases and the advanced stages of disease or injury, while those in the out-patient departments represent the earlier or milder stages at which time it is more difficult to make a correct diagnosis and proper treatment is of greater importance to the patient. Clinic patients correspond to the office patients of the practicing physician, of which he always has many more than he has of bad patients.

There has been a tendency in many schools during recent years to use the out-patient department more for teaching than formerly. Unfortunately, crowded conditions, lack of facilities and the large number of patients who must be seen in a short space of time often lead to incomplete examinations, inaccurate diagnoses, as well as to hasty and insufficient treatment and advice which do not constitute very good examples of practice to set before the medical student—the future physician. He is likely to continue, in his practice later, the same methods and practices that he sees and takes part in as a student. A smaller number of patients, more thoroughly examined and treated, would set a better example and be far more instructive to staff and students. With this idea in view, the new building has been planned to provide for the care of a limited number of patients by members of the staff and advanced students under conditions and with facilities corresponding, as nearly as possible, to those in private practice. Each examination and treatment room, in all departments, will contain, at least, the minimum equipment that is required for similar work in the private office.

While members of the teaching staff in the pre-clinical subjects have long been provided with laboratories and equipment for teaching and for their own study and research, the teachers in the clinical departments have been obliged to get along without them. In this new building we have provided well equipped offices, laboratories and other facilities for the clinical staff where they can pursue intensive studies and researches in connection with the care of their patients or otherwise. We are also providing accommodations and facilities for our own graduates or others who may wish to pursue intensive work and studies for a few months or years, in special fields.

The building has been located near the Charity Hospital with the idea that it should operate in the closest co-operation with that institution. It is hoped that the clinic patients cared for will help to relieve the crowded conditions in the Charity Hospital Clinic and that the facilities for study and research will be of great benefit to the resident and visiting staff of the hospital.

At all times, from the very first thought of this new building, there has been every intention to provide comfortable and adequate accommodations for the organized medical profession of this community, represented by the Orleans Parish Medical Society and the Louisiana State Medical Society. Tulane University is deeply interested in promoting the interests and welfare of the organized medical profession of the city and State, not only because a large part of the physicians are her own graduates, but also because the real function of the Medical College is promotion of medical science and advancement of medical knowledge.

The following resolution passed by the Tulane Board of Administrators and presented to this Society some time ago by Dr. M. J. Magruder, representing the Board,

expressed clearly the welcome always extended to the Society:

"Whereas, There exists at present an arrangement between Tulane University and Orleans Parish Medical Society, whereby the Society is extended the privilege of conducting its meetings and housing its library in the Hutchinson Memorial Building; and

Whereas, It is the purpose of Tulane University to foster and promote higher education and through its Department of Medicine co-operate with the organized medical profession in the advancement of medical science;

Be it resolved, By the Board of Administrators of the Tulane Educational Fund that we wish to extend to the Orleans Parish Medical Society the assurance of our good will and desire to continue the existing cordial relations, which will in no way be effected by the contemplated erection of a new building for the School of Medicine; other than a provision for more modern and better facilities for conducting the work of the Society."

Plans of the offices and accommodations have been submitted and discussed with the officers from time to time and both the State Society and the Parish Society, through their proper representatives, have expressed their approval of and satisfaction with them. We have had the helpful co-operation of the Library Committee of the Parish Society in developing the plans for the Library.

Perhaps the greatest single need of New Orleans as a medical center is a great medical library. Neither the Society, nor Tulane, at this time, has sufficient funds to finance the purchase of and subscription for all the books and journals that are needed. By keeping the collections owned by each institution close together and operating the library so as to avoid unnecessary duplications and yet make each available to all, it will be possible to make what funds we have go much further than they would go otherwise. This close co-operation and pooling of resources should ultimately provide one of the best collections of medical literature in the country, and our reading rooms will become a mecca for students of medicine in New Orleans, in Louisiana, and in the South.

We want the Parish and State Societies to feel that this is their home, to which they are always welcome and to accept the accommodations provided for them as an effort on the part of Tulane University to promote the interests of the organized medical profession.

INTESTINAL POLYPOSIS IN CHILDHOOD.*

A REPORT OF THREE CASES AND A SURVEY OF THE LITERATURE.

CHARLES JAMES BLOOM, M. D.,

NEW ORLEANS.

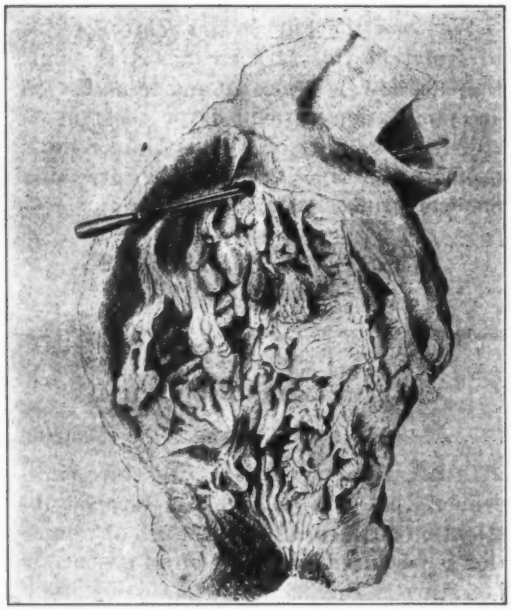
In a careful perusal of literature, it is evident that this subject has escaped the attention of the profession. Such an admission is permissible in light of an absence of literature in English, bringing to our attention another entity, most uncommon in the past, but apparently on the increase at this time. An absence of symptoms in some, indefinite signs in others, limited abdominal pain, explains how readily one can fail to properly diagnose these growths. If we add to the above, how few mothers carefully check and examine the daily excrements of their children, and how seldom the tumor is found, the rarity of case reports is clearly understood.

The writer is now reporting three cases in children, which have come to his attention during the past year.

HISTORICAL.

The earliest case reported in the literature was probably that of Menzel[71], in 1721, whose patient was a boy, aged 15 years, with dysentery. At post-mortem it was observed that the growths of mucous membrane of the large intestines had great numbers of wart-like excresences. There is no further mention of the condition until 1832, when Wagner [105], in describing the end results of ulceration of the colon, states, "that sometimes on the margins of scars and on smooth cicatrices

*Read before Louisiana State Medical Society, New Orleans, April 9-11, 1929.

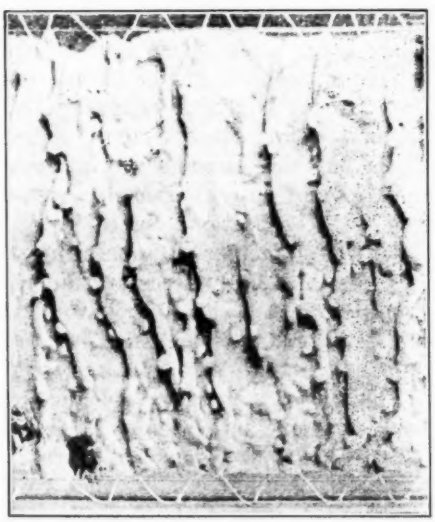


Interior of the rectum showing disseminated polypi and cancerous stricture. Recorded by Thomas Smith in St. Bartholomew's Hospital Reports, 1887.

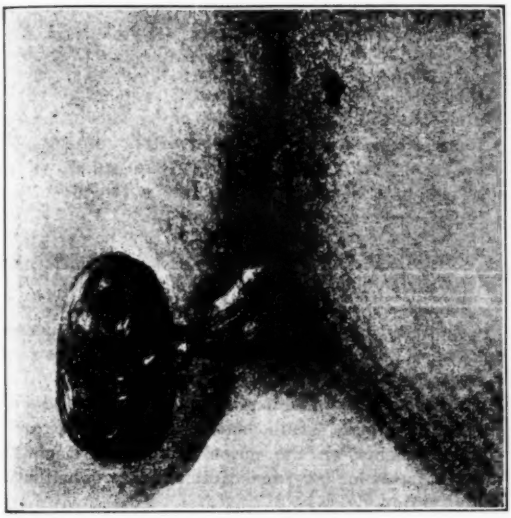
of healed ulcers, tiny polypoid tumors were found."

After this lapse of 111 years, the stimulus for investigation seemed to start, for in quick succession many articles relating descriptions and citation of cases are to be found in foreign magazines, especially in Germany and France. Unfortunately, but few of the original articles have been obtained, but are herein included so as to give us an idea as to what has been written on juvenile polyposis.

Case reports and articles pertaining to children have been described by: Schneider [86], Tott[96], Bodenstab[11], Gigon[38], Dotzauer[25], Schutte[89], Guersant[40], Perrin[81], Vallez and Guillery[100], Barthelemy[6], Raymondaud[84], Luton[68], Stoltz[94], Nelaton[75], Gallois[37], Joelson[49], Name unknown[111], Paul[80], Kronenberg[59] and Virchow[102]. The latter "gave microscopic findings in a boy aged 15, who had dysentery. The polypi were vesicular, with fluctuating prominences, and many of them had scattered over their surfaces small openings from which gelatinous material protrudes and could be expressed. Under the microscope these vessels were found to be dilated crypts of the glands of Lieberkuhn, filled with a mucous material . . . ". A third article by Guersant was published in 1864, and a very interesting work by Bokai[12]. Vachey[97] contributed a singularly good narrative. But it was not until 1882 that real interest was stimulated by Cripps[20], who was fortunate enough to observe three cases, all occurring in the same family. This, to my knowledge, was the first report coming from the pen of an Englishman. "His first patient, a boy of 20 years, had first noted rectal bleeding when he was 10 years of age. During the ensuing 10 years he was repeatedly operated upon and polyps were removed per rectum with temporary relief only. When seen by Cripps, patient was suffering from a marked secondary anemia, painful defecation, bloody mucous discharge and, at times, profuse rectal hemorrhage. He could, at will, protrude an egg-size mass from the rectum and a proctoscopic examination disclosed, as far as eye could reach, the rectal wall thickly studded with



Portion of jejunum, profusely studded with small polypoid excrescences. Illustrating Kanthack's and Furnivall's case of multiple polypi of the small intestines. (1897).



Prolapsed rectal polyp. (Collection of Dr. I. A. Abt.)

vesicular, pedunculated tumors varying in size from a pea to a cherry."

Congenital intestinal polypus in a female of 8 years, was reported by Floyer[36]. In 1890, Dunn[29] cites a case of multiple polypi of rectum as follows: "These polypi, numbering about thirty, were removed at one sitting from the rectum of a boy aged 10 years, at the East London Children's Hospital. The masses vary in size from a pea to a large bean. Under the microscope they are seen to consist of the usual glandular structure. The clinical history referred only to the passage of blood by rectum and occasional prolapse of one of the masses. The growths were removed chiefly by being twisted off with forceps; the larger masses were ligatured and cut away. The patient made a good recovery." Bickersteth[9] gives case histories of multiple polypi of the rectum occurring in mother and child. Shattock[91] records case of "polypi of lymphatic tissue from a child's rectum."

Additional articles continued to be contributed by foreign writers, and one or two from this country.

Bossert[13], Lindner [62], Kanthack and Furnivall[53], Leclerc[60], Felicet and Branca[35], Cathelin[17], Vajda[99], Kammerer[52], Aronheim[4], Adler[2], Niemack[78], Cazal[18], Psaltoff[83], Meyer[73], Judet and Baldenweck[50], Dewis[23], Von Mettenheimer[104], Bindi[10], Doering[24], describing 52 cases, reports youngest at 12 years. Feldner[34], Schneider[87], Albu[3], von Bokay[103], Federici[32], and d'Arcis[22] confined their descriptions of polypi to children alone. Mr. Hamilton Drummond[27] (discussion-Norbury 1913) had had the opportunity of watching a case operated upon by Professor Rutherford Morison. A boy, aged 13, had a left colostomy done for multiple polypi of the rectum from which hemorrhage had been a most severe symptom. The colostomy was left open for about 18 months, during which time the rectum was washed out daily with saline solution through the colostomy wound. After 18 months had elapsed, sigmoidoscopic examination showed the rectum to be normal, and all signs of the polypi had disappeared. The colostomy was closed and the boy now worked as an apprentice fitter. It was now over three years since the closure of the colostomy wound.

It is suprising, even at this time, how few case reports are being brought to our attention.

Hertz[46], Newbolt[77], Bratrud[15], Lorenzini[66], Neuhof[76], Soper[93], Bevers[8], Erdmann[30], Marcus[70], Gruget[39], Bouvier[14], Barrington-Ward[5], Jungling[51], Wheeler[108] and Muniagurria[74] contribute to the completion of the literature up to 1929 on intestinal polyposis in childhood.

The following are the three cases seen by me during the year 1928 and are herein described in detail:

Case 1. Richard L. was the only child of healthy parents. Having been under my care since he was two weeks of age—now having reached his third birthday—his past history was known in detail. At one year, vaccine therapy was given, curatively for a mild attack of per-

Illustrating Case No. 1.

tussis. In close sequence—a tendency to frequent attacks of tonsillitis was noted, many times being followed by a very disturbing elevation of temperature, periodic in character, and lasting sometimes for weeks.

The feeding program was very carefully planned, though he always lacked the desire for food so often observed in infants.

In April, 1926, having apparently a disgust for food, and showing objectively signs of secondary anemia, a complete examination was made:

May 14, 1926. Urine: negative. Blood: Hgm. 95, leukocytes 8250, S. 62, L. 5, N. 32, E. 1, B. 0. Feces: negative.

May 20, 1926. Blood: Hgm. 95, erythrocytes 2,465,000, leukocytes 9000.

May 20, 1926. Radiologic examination of the sinuses shows a very slight opacity of the left antrum compared with the right. The remaining sinuses are undeveloped. The examination of the chest shows a slight thymic enlargement to the right, extending 2.5 cm. to the right of the median line. The lungs are clear and apparently normal.

For the first time, evidence of a murmur was noted—systolic in character, which eventually was diagnosed as mitral regurgitation. Though various tonics by mouth and hypodermically were given no apparent improvement could be seen. The tonsils were now large, anemia still present, and the murmur rather marked. Accordingly, his tonsils and adenoids were removed in May, 1926, and displayed definite pathology.

Prior to his leaving New Orleans in June of this year, with his cooperation, a positive D'Espine was elicited. An afternoon elevation of temperature was recorded often during his absence. Returning home in September, 1926, he spent a healthy winter. As a matter of interest, he remained well up to July, 1927.

Intestinal Symptoms: Richard had always belonged to that group of children who are very difficult to feed, and, though his weight was within normal limits, he apparently appeared underweight. Amusements of various sorts were necessitated by his antipathy toward food. This unquestionably influenced a costive tendency. Several times, small amounts of blood were noted, either on the outer surface of a constipated stool or at times following a constipated evacuation.

In July, 1927, the little fellow seemed to have gone backward—his weight was stationary—33 lbs. His old symptoms of afternoon elevation of temperature, anemia, loss of appetite, reappeared to a very marked degree, though the murmur had now become inappreciable; the D'Espine sign was negative. Breath sounds were somewhat abnormal and his cardiac area was increased.

July 7, 1927. Blood: Hgm. 75, leukocytes 10,000, N. 43, S. 54, L. 3.

July 7, 1927. Radiographic examination of the chest shows a slight glandular enlargement at the hilum of both lungs with some slight infiltration in the lower portion of the left lung. The aorta shows a distinct enlargement to the right and left, its outline being clearly visible behind the heart. The heart is slightly enlarged to the left and right.

While his physical condition was being checked, on the afternoon of July 9, 1927, for no apparent reason, he complained of pain in his abdomen, seemed nauseated, and refused to eat his midday meal. He expressed a desire to have a stool and, upon completion of same, much to the surprise of his mother, she discovered macroscopic blood, together with a fleshy mass, mixed in with the fecal matter. She summoned me quickly, and, knowing the conservative parent she is, I lost no time in going immediately to her assistance. Indeed, what had been described was correct, even to detail, but, in her excitement, she had overlooked a peduncle associated with the mass. A small walnut would approximate the size of this abnormal constituent of the stool. When the question of diagnosis

was asked., I refrained temporarily from giving an opinion, the tissue having, in the meanwhile, been given to the pathologist.

From this time on, there was no discomfort. A light cooked soft meal was relished by him, he frolicked around and seemed in better spirits than he had been for days.

This unusual tumor worried me—my first thought being a mucous polypus—particularly because it was pedunculated. But not having had a similar case in the past, and not having reviewed the literature, the opinion of the microscopical examination was awaited with interest. At seven o'clock the same evening he had a second movement, formed rather hard, containing a large clot of bright red blood mixed with feces, and a rather large amount of bright red blood scattered throughout, particularly at the end of the movement. Then the thought struck me that my original tentative diagnosis was the probable one. This clot occurred after the separation of the mass from the abnormal wall—remaining in situ until another stool was in progress. This, in turn, irritated the surface of the bowel, where the peduncle was originally attached, producing a small hemorrhage.

Pathologist's report: Examination of the piece of tissue from Richard L. shows it to be a polypoid growth, made up largely of granulation tissue, partly covered by epithelium. It is the seat of an active inflammatory reaction, mostly of sub-acute and chronic type, although a few areas of acute exudate are noted. There is no evidence whatever of a new growth or of any specific type of inflammation and I feel that the condition is one of mucous polyp.

As a matter of coincidence, he seemed to improve—appetite, color and disposition—a changed child. No occult blood has been found since. At this writing, April, 1929, no evidence, either microscopic or macroscopic, suggestive of a polypus, has been observed.

Whether this is the type where one polypus is noted, or whether there is more than one, remains yet to be seen.

Case No. 2. The history of the second case is somewhat incomplete, as the parents of the child did not cooperate with me—due to superstition and ignorance.

Frank P., Jr., aged 4 years, was the son of a trapper. The child had always lived along Bayou Barataria, a region where mosquitoes were plentiful, and malaria very common. The drinking water was obtained from old-fashioned cisterns, whose sources of supply were filthy roofs. These reservoirs are always unsanitary. Diet was an absent quantity in his bringing up—as these children receive table diet almost from infancy—limited milk and meat—large amounts of shell fish—questionable amounts of fresh vegetables.

He was brought to me March 1, 1928, when 4 years of age. For fifteen months, blood had been noticed in his movements, and as no improvement had been observed, his parents suddenly became alarmed. There was nothing in the past history that would materially assist in the diagnosis.

His physique was diminutive—being 31¼ inches, and weight just 27¾ pounds—considerably under normal, though he was 9 pounds at birth. As a natural association, his physical development was far below the average for one of his years. Other than history of restless nights and lack of appetite, little data could be obtained.

The findings are as follows:

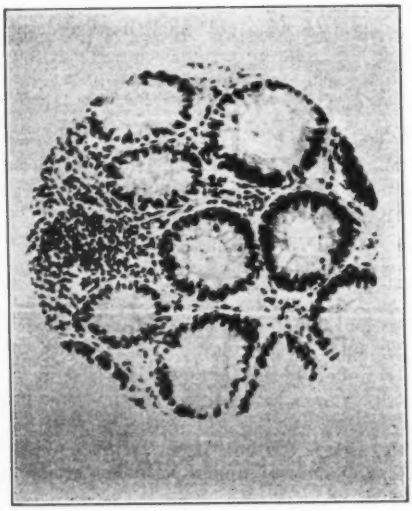
March 3, 1928. Urine and feces: negative. Feces: (rectal tube) negative for amoeba; occasional red blood cell, no mucus. Blood: Hgm. 90, erythrocytes 5,250,000, leukocytes 10,500, N. 56, E. 4, S. 36, L. M. 4.

The same plan of differential diagnosis as explained was utilized and a diagnosis of intestinal polypus was decided upon. A short time later on, a telephone message conveyed the news that a fleshy mass had been passed, but I was not able to recover the "fleshy mass."

Case No. 3. Carolyn S., aged 4 years, was referred to me, in the fall of 1927, by Dr. Charles Catchings of Woodville, Miss. She appeared in splendid health and did not outwardly reveal any visible signs of anemia, though "she had had bowel trouble—with stools containing blood—for the period of one year."

Knowing the tendency of mothers, at times, to exaggerate—past histories must be thoroughly gone into, and accepted with elements of doubt. But there are exceptional cases, where such stories are actual facts and must be accredited as true. This mother assured me that the substance passed was "bright red blood"—not in small amounts—but emphatically stated "in large quantities." Then, very naturally, the question arose—what conditions could produce this particular symptom? If it had not been for the fact that two other cases not unlike this one had been examined by me in the past year, the diagnosis would have been extremely difficult.

She was well developed for one of her years—height 38¾ inches; weight 31¾ lbs.—though



Illustrating Case No. 3.

2¾ lbs. underweight she was within normal limits. Her musculature was good, there was no reason to believe that her illness had incapacitated her in any way. Carolyn's disposition had not been spoiled, and neither had sleep been affected. Her bowels were regular; no purgatives had been necessary as is the case in most children. There was no criticism of the diet, though at times her mother would indulge her, and give "goodies." Other than a slight flaring of her ribs, submerged tonsils, and a history of measles in the past—the birth, familial and past history is of no particular interest.

The results of the first examination are as follows:

October 11, 1927. Feces: No parasites, larva or ova found; no mucus or pus. Occult red blood was present.

October 12, 1927. Urine: negative. Feces: negative.

October 13, 1927. Radiologic examination of the gastrointestinal tract shows the stomach rather large and somewhat dilated. There is evidence of a marked pylorospasms. The stomach empties slowly.

The second observation made three hours later shows the stomach about two-thirds empty with again evidence of considerable spasm.

Six-hour observation shows the stomach entirely empty with the head of the opaque column in the descending colon. There is a marked spasm of the colon throughout at the present time. The appendix is clearly seen at this time rather long and extending deep into the pelvis, and shows some constriction along its course.

Twenty-four-hour observation shows a moderate cecal and colonic stasis with again a spasm of the colon. The appendix is still seen showing a marked kinking and again evidence of constriction along its course.

Forty-eight-hour observation shows still a definite filling of the appendix. There is a slight colonic stasis.

Conclusion: Pylorospasm, spasticity of the colon, cecal a colonic stasis, probable appendicitis.

After carefully eliminating the less frequent causes of blood in the stool—the final differential diagnosis rested with the following possibilities:

1. Amebic dysentery.
2. Appendicitis (type where intestinal parasites—especially pin worms—are found in the appendix).
3. Injury due to foreign bodies being introduced into the rectum as an expression of perversion.
4. Internal hemorrhoids.
5. Malignancy.
6. Polypus.
7. Intestinal parasites (hookworm).

Amebic dysentery was considered because there are atypical cases where feces examinations are negative at first, but where, ultimately, the amebae will be discovered.

Appendicitis could not be eliminated because I have seen blood in the stools where intestinal parasites were finally found in the appendix.

Perversion thought of, but not seriously so.

Internal hemorrhoids: The amount of blood is not in keeping with this possibility, and the age of the child would negative it.

Malignancy uncommon, and physical make-up readily eliminated this is a probably cause. As a matter of interest, I have only seen but three cases of intestinal malignancies.

Polypus: The most probable diagnosis—viz.: blood in large quantities at times, though found microscopically in the interim; no marked anemia nor cachexia—apparently not producing symptoms affecting the child to any marked degree.

She was returned to her physician for further observation—diet, general tonics and intestinal lubricant ordered, and her return requested.

In the spring of 1928, a second examination was made, as there had been no apparent improvement in her physical state in the eight months that had elapsed. She was now some 5 pounds underweight.

A second gastrointestinal series was undertaken, laboratory tests rechecked, with the findings as follows:

June 19, 1928. Radiologic examination of the gastrointestinal tract shows a marked spasm of the pylorus. At the end of three hours the stomach was about ¾ empty and the head of the opaque column was in the transverse colon. The spasm of the pylorus is still apparently as described previously. At the end of six hours there is still a retention in the stomach with again evidence of a spasm of the pylorus and the head of the opaque column was at the splenic flexure. Twenty-four hour observation shows considerable colonic stasis with highly spastic bowel.

Conclusion: Highly spastic gastrointestinal tract. (Forty-eight hour observation to be made).

June 18, 1928. Feces: Negative for parasites, pus and R. B. C. present; no mucus.

An appointment was made for a proctoscopic examination. As a matter of interest, one hour prior to this appointment, the mother telephoned in great distress, informing me that her child's intestines were protruding through the rectum and bleeding profusely. Within a short time, she was in my office and, much to my surprise the polypus had protruded through the rectum—the bleeding having become less due to the constriction of the rectus ani around the peduncle. The growth was the size and shape of a hickory nut—rather small—reddish gray in color, and quite vascular and fleshy. The peduncle was fully 1½ inches in length—about the size of the average lead pencil. The diagnosis had been confirmed.

She was immediately operated upon, with no aftermath and, since that time—as far as I know—the bleeding has ceased—leading me to infer that this was the solitary tumor.

The operative report and pathological findings are now given:

Operation (Dr. P. Graffagnino): With the rectal speculum, the sloughing polypoid mass was exposed, clamped, ligated and severed between clamps. The base was cauterized and one pack introduced.

June 20, 1929. Laboratory Report (Dr. John Lanford): Specimen is nearly a spherical mass about 2 cm. in diameter. It is soft in consistency and section shows very little resistance. The cut surface is exceedingly moist and a very dark red in color.

Microscopic diagnosis: Rectal polypus, showing acute and chronic inflammatory reaction with some cystic spaces. Local hyperplasia of mucous lining.

PATHOLOGY.

At the present time, the nomenclature of tumors of the intestinal tract, both of congenital and acquired origins, is very difficult to comprehend. A clear and simple classification would unquestionably aid those of us who are interested in pathology, but who are potentially clinicians.

Various theories and groupings are as follows: Virchow[102], first described the disseminated form, terming his case "colitis polyposa cystica." Hauser[42], speaks of the condition as "polyposis intestinalis adenomatosa," and "is a strong advocate of the theory that simple polypi of the colon may become malignant." Meyer[72], believes that intestinal polyposis is congenital. Huber[48], "has attempted to show that these tumors are a result of a general systemic lymphatic hypertrophy," and quotes etiological viewpoint and remarks of Dr. J. P. Tuttle of New York as representative of the current views at that time. He also reports on the findings or conclusions, of the following: Lilienthal[61], Beach[7], Vajda[99]. Cripps[21], called attention to the great rarity of disseminated polypi. He quotes three cases, all members of one family, observed during life, and three specimens in the London museums. According to Handford[43], in Mr. Cripps' specimens "the fibrous tissue of the stalk, on entering the head of the polypus, expands, forming a central nodule of fibrous tissue. Radiating from this central nodule are fibrous branches of greater or less extent. From these main branches fibrous twigs are given off, which, expanding into a delicate retiform tissue, furnish the supporting framework

of the epithelial covering. The epithelial covering consists of a single layer of columnar cells arranged in a bipenniform manner on the retiform tissue." Handford further states that the adenoid polypi described by Mr. Cripps seem to have been produced on the type of the intestinal villi. . . . ". Verse[10], realizes the difficulty of classification. Adami[1], accepts polypoid tumors of intestinal tract as having structure not unlike that of adenomata. Kaufmann[55], regards adenomatas as both polypoid and papillary. Bratrud[15], suggests "gastro-intestinal polyposis." Hertzler[47], refers to intestinal polyposis as a potential hyperplasia of the mucous membrane. Struthers[95], believes that "for the sake of convenience, tumors of the intestinal tract may be divided into three groups. The papillomas are those tumors in which the surface epithelium, either cutaneous or mucous, is involved; they are usually found low down at the mucocutaneous margins. Polypi result from hypertrophy of the mucous membrane, or originate as true tumors. The adenomas from the group in which the neoplasms are derived from pre-existing glands or glandular remants. . . . This is the so-called multiple polyposis or colitis polyposis (cystica). . . . The pedicled growth is most common in children, and the fact that there were no cases of children in this series may account for the absence of cases of intussusception." Helmholz[45] in his article "chronic ulcerative colitis in childhood" reports five cases of this condition in children, and states in part: . . . "The anatomic changes had been described, no doubt in its terminal stage, by Virchow[102] and others, as polypus of the colon, the polypi being formed by a proliferation of the islands of mucosa in the ulcerated colon. . . ."

Drueck[26], discussing the benign tumors of the anus and rectum, has the following description:

"Adenoma. . . . The majority of rectal polypi belong to this class and rectal adenomas are so often referred to as polypi that many practitioners consider the terms synonymous. Such, however, is not the case. All polypi are not adenomas, neither are all adenomas polypi. Adenomas undergo hyaline, myxomatous or cystic degeneration but do not develop metastasis. They are found in all ages although those occurring in children differ very much macroscopically, microscopically and clinically from those present in adults. Two different types of adenomas exist, the single ademona with the long pedical usually found in children, and multiple adenomas, having broad attachments and usually found in adults."

"Single Adenoma. In children there is usually a single adenoma or at most but three or four, varying in size from that of a cherry to perhaps a hen's egg, each with a slender peduncle which may measure up to six inches in length, depending upon the size and age of the tumor. If the mass has been dragged upon for a long time by the bowel trying to expel it, the pedicle becomes stretched and attenuated. The tumor itself much resembles a red raspberry in appearance. It is ovalshaped, bright red, with a rough surface and consists of a preponderance of connective tissue with a small amount of glandular and epithelial structure. This type of adenoma usually occurs in children under twelve years of age, although it is sometimes found in adults." . . . . .

Schultz[88] in his chapter on non-malignant growths of the intestinal tract, states as follows:

"Papilloma: In the intestine a papillary surface arrangement may be associated with the formation of glandular structures; pure intestinal papillomas are less frequent than pedunculated polypoid tumors, with a purely glandular character. Both forms are often congenital, and may show a tendency of familial occurrence.

"Adenoma: Benign tumors, originating in glandular epithelium, are characterized

by the formation of glandular acini or lobules, which usually reproduce fairly closely the normal structures from which the tumor has arisen. So long as the tumor remains benign the epithelium is well differentiated and is sharply deliminated from the surrounding stroma. The most frequent example of adenoma in childhood, is the glandular polyp of the intestine. While such polyps may occur anywhere in the tract, they are most often situated in the rectum. They are pedunculated and are composed of cellular, lymphoid stroma in which the glands, lined by single layered columnar epithelium, are embedded. Twisting of the pedicle may lead to spontaneous amputation of the polyp."

Erdmann and Morris[31] in a splendid survey of the subject, conclude:

(1) "for the purpose of standardization, it is suggested that the term 'polyposis of the colon' be limited to designate an adenomatous hyperplasia of the intestinal mucous membrane, as opposed to those polypoid tumors of the intestine which are histologically fibromata and myomata, etc;

(2) polyposis of the colon appears to be a uniform, non-specific mucous membrane reaction, variable only in degree to a chronic irritant in the presence of a preternaturally sensitive mucous membrane;

(3) it is manifested grossly as scattered intralumentary tumors varying in size from a split pea to a grapefruit and has a specific predilection for the large gut and rectum which predilection increases in direct proportion as we proceed from the ileocecal valve.

(4) two clinical types may be distinguished; (a) the adolescent variety, signalizing itself in early youth by chronic, recurring attacks of intestinal hemorrhage and diarrhea and showing a distinct tendency to involve members of the same family; (b) an acquired variety first appearing in adult life in association with frank evidences of chronic traumatic and inflammatory lesions to which they are evidently secondary.

(5) the two types have in common (a) the marked predilection for the large gut. (b) a malignancy incidence of more than 40 per cent. and a tendency to chronic intestinal hemorrhage and diarrhea. They are dissimilar in that the one (adolescent) is widely disseminated, appears in almost countless numbers and shows no gross evidence of a causative lesion; while the other (adult) occurs in limited numbers and extent with, almost invariably, associated gross evidence of trauma, inflammation, or foreign body. The one is essentially a disease of early life while the other occurs in middle or late life, the cumulative result of prolonged irritation incident to years of functional activity of the gut.

(6) In the presence of persistent and unexplained rectal bleeding and dysentery in early life, suspicion should be aroused of the existence of the adolescent form of polyposis of the colon; in adults, although a relatively less frequent cause, its consideration should not be neglected in a differential diagnosis of an obscure case of bleeding and dysentery"

Lockhart-Mummery[65] classifies innocent tumors of the dectum as follows:

Tumours of Congenital Origin.

Hypertrophied Papill. Naevi	Dermoids
Cirsoid aneurysm or cavernous naevus.	Post-sacral, pre-sacral, containing glioma cells and ciliated cells.

Acquired Tumours

Warts	Adenomata
Villous and papillary	Single
Infective papillomata	Multiple
Tuberculide	

Fibroid Polyps These probably arise most frequently from strangulated piles.	Adenomomata
	Chordoma
	Chordoma Sacro-coccygeal
Lipomata	Carcinoid

The word "innocent" is used by the writer only in a comparative sense as he believes that few, if any tumors of the rectum are innocent of causing trouble, a great many so-called innocent tumors being malignant —potentially speaking. He believes that the recognition of this and the removal, wherever possible, of all innocent tumours as soon as possible, is one of the great advances of modern surgery.

He then defines the various terms in the classification above, but, for the sake of brevity, only fibroid polyps and adenomata will be treated.

"Fibroid polypi are fairly common, and a great many varieties are met with. Fibroid tumors of the large bowel appear to originate most frequently as the result of some form of injury. Thus, fibroid polypi in the anal margin usually arise from strangulation piles. The pile probably becomes strangulated and eventually is returned into the rectum, where, as the result of inflammation, it slowly becomes converted into fibrous tissue. Such fibroid polypi tend slowly to increase in size. I have seen some of them as large as pigeon's eggs. . . . . Again, in cases of hyperplastic tuberculous stricture, it is very usual to find large numbers of polypi associated with the stricture; exactly how these arise is at present rather uncertain."

"By far the commonest variety of innocent tumor met with in the neighborhood of the rectum and colon in an adenoma. Adenomata occur in two main varieties. They often occur as single, small tumors, which may grow to a very considerable size and are then called villous tumors or papillomata. . . . They give rise of considerable bleeding and much mucous discharge. When examined they are quite soft and often cover a very considerable area of the rectum."

"In my experience they are more often sessile than pedunculated. . . . . "

"Another variety of adenoma is multiple adenoma, or, as it has been called, adenomatosis or colitis polyposa. This condition appears to be a familial disease. The number of polypi which may be present in one individual runs into hundreds of thousands, and the entire bowel may be packed with them from the ileocaecal valve to the anus. The great majority are very small, but some may be as large as pigeon's eggs. . . . "

C. Dukes[28] in the discussion following Lockhart-Mummery's address, pointed out that the words papilloma and polyp were gross anatomical terms, giving no information as to minute structure or function.

Saint[85] relates confusion as to meaning of "polypus of intestine" and believes in the necessity for being specific from the histologic standpoint.

Perhaps some diffuse inflammatory condition might be a factor stimulating a growth of this nature, but no explanation has concretely substantiated this conclusion.

FAMILIAL.

Hereditary tendency has been recorded in a very limited number of reported cases in children. Cripps[20] cited three cases occurring in one family. Smith[92] describes three cases of multiple polypi of the lower bowel—two brothers and their sister—(apparently same as those referred to by Cripps). Bickersteth[9] called to our notice a multiple polypi of the rectum in a boy; search of hospital records revealed that the mother had suffered precisely in the same way and a brief summary of her case from the age of 10 years until her death of phthisis at 29 years, is recorded. Huber[48] has observed cases "in a few instances

occurring in members of the same family; in two instances the patients were cousins." Niemack[78] reports case of female, 12 years, whose father apparently became affected with same condition after her death, and a nephew who subsequently came under his care and 2 large pedunculated polyps 5 in above anus, found. Zahlmann[110] reported six cases occurring in one family. Doering[24] patient was a boy, aged 16, whose mother and uncle died from a cancer of rectum. Hertz[46] interestingly tells us of four cases discovered in one family, all children.

SYMPTOMS.

Many clinicians, I am sure, will be somewhat skeptical in accepting the statement that—in some instances—definite symptoms are wanting. At best, there are but few outstanding suggestive signs warranting this as a possibility in a differential diagnosis.

From another tangent—the symptoms vary within wide margins. There might be tenesmus and bleeding if the site of the polypus is in the rectum. Anemia—at times cachexia—are mentioned in case histories, granting that in rare instances, there is but a single polypus, such as is told by Fee[33]: September 13, 1845, Fee was summoned to see a 10-year-old girl, who, one hour previously had had a bloody discharge from her bowels amounting, according to the mother's estimate, to more than a quart, and also discharged, at the same time, what he considered from description to be a polypus—said by the parents to be somewhat larger than a partridge egg, of oval form, studded over the outer surface with hemispherical prominences, filled with a sero-purulent fluid, the peduncle being about the size of a large goose quill. This specimen was left on the ground, where it was examined, and swallowed by the poultry before the arrival of Dr. Fee. The patient was found to be much prostrated, with pulse scarcely susceptible, cold extremities, a sense of stricture at the precordia, and distressing nausea.

Tumor: (a) Size (small pea to walnut). (b) Number (single or multiple—single in each case of this series). (c) Consistency. Polypi, common in the lower rectum, though met higher up, usually originate within an inch or an inch and a half from the anus and are attached by a pedicle varying in length and thickness. If of the soft variety, they may be villous or glandular. The villous vary in size from a pea to a Concord grape and are pedunculated; the glandular or cystic form has a shorter and thicker pedicle. This form is apt to undergo malignant transformation. Both bleed freely. In the mixed variety, the polypi are hard and the tumor contains elements and submucous cellular tissue. The importance of bearing in mind the "fact that the growths contain the constituent elements of the mucosa and submucosa will be appreciated later on." (d) Type, pediculated or sessile. (e) Color, red to purplish. (f) Position, within internal sphincter, or in bowel as a whole—often in region of ileocecal valve. (g) Bleeding or hemorrhage. (h) Abdominal pain, "The history of repeated attacks of colic with symptoms pointing to obstruction, as illustrated by reported cases, should suggest polyposis in obscure cases." (i) Digestive disturbances: "The single polypoid shaped tumor occurring in children, may be extruded only during acute digestive disturbances accompanied with powerful peristalsis and tenesmus. At other times, when retained within the bowel it may cause obscure digestive disturbance with diarrhea."

Another author states that remarkable feature of the case is attacks of abdominal pain ever since birth. . . . "

DIFFERENTIAL DIAGNOSIS.

Where the tumor is recovered, the diagnosis is relatively simple, but in difficult cases, the presence of blood, and an occasional abdominal pain may suggest the possibility of some intestinal growth. Blood in the movements of children is very significant and important. What does it mean?

In passing, it may be of interest to those whose practice is not devoted to pediatrics, to know the possibilities in these cases. Briefly, they are:

1. Volvulus
*2. Intussusception
*3. Amebic dysentery
*4. Ileo-colitis
5. Ulcers (peptic ad duodenal)
6. Appendicitis
7. Intestinal parasites
8. Ingestion of poison
   a. food
   b. drugs
*9. Malignancy
10. Blood dyscrasias
   a. hemorrhagic disease of newly born
   b. purpura
   c. hemophelia
   d. leukemia
   e. pernicious anemia
11. Banti's disease
12. Tuberculosis (Intestinal)
13. Typhoid
14. Parathphoid
*15. Constipation
16. Foreign bodies
17. Fissures of rectum
18. Hemorrhoids
19. Malaria
*20. Polypus and Benign Tumors
21. Perversion.

* These are the most commonly noted, of the above.

Proctoscopic: A proctoscopic examination will oftentimes render certain the diagnosis. Placed in position, the tumor will immediately be recognized.

Radiological: Radiological examinations, as yet, have been of no special aid in the diagnosis of this conditon.

Prolapse: Where there is a tendency to prolapse, with no association of constipation, and where the ordinary measures fail to relieve, or obviate this relaxation of the bowel, one must think seriously of polyposis as a possible factor. This is especially true in cases where one growth is found, for the reason that the site of predilection is one not more than a few inches from the rectum.

Neuhof[76] excluding the transient prolapses of infancy, states that thirty-three instances of rectal prolapse in children had been observed in the past three years—and in ten cases a rectal polyp was found. He stated that the coexistence of rectal polyp and prolapse is probably not as frequent as these figures indicate, for only when polyp was either felt or suspected were a number of the cases of prolapse referred from two of the pediatric departments. Polyp was removed in eight of ten cases. Of these six could be traced and all had been cured of prolapse by excision of the polyp. He reported a fact worthy of note that in not a single instance could the polyp be drawn out beyond the anus, either at the examination or when the patients were operated upon, and that he had seen three cases in which polyps protruded from the anus, but rectal prolapse (beyond the anus) was not present in any of them.

All but one of the cases of polyp complicated by prolapse were quite uniform—passage of blood and mucus in stool, occasional bleeding immediately after defecation and prolapse of mucous membrane during or after defecation or enema. The exception was in a boy—four years old—who had had prolapse accompanying bowel movements for about two years—forcible reduction by mother was occasionally necessary—there was never any blood or mucus in the stool; treatment had consisted in strapping the buttocks. Upon examination, August 6, 1913 (Surgical Clinic, Mt. Sinai Hosp. Disp.) a polyp was found attached high up on the lateral wall of the rectum. It was unusually firm and fibrous, and its removal was followed by permanent cure of the prolapse. The prolapse disappeared at varying period after bowel movements; in none of the patients was it permanently beyond the anus; length varied from one to three inches.

Rectal Prolapse: This is so often associated with polyposis of this part of the bowel:

Neuhof[76] illustrates briefly just what can be anticipated in such a case reporting that about three years previously, a child who had been twice operated upon for rectal prolapse came under his observation; neither operation had any influence upon frequent appearance of mucous and blood in the stools, and the anemia from which the child suffered was very advanced when Neuhof saw her.. Upon rectal examination he found a polyp attached by a long pedicle to a point about three inches above the anus. Its removal resulted in permanent relief from the prolapse and the passage of blood and mucus with the stools, and the anemia gradually disappeared. The experience led the writer to investigate the relation between the occasionally encountered rectal polyp and the frequently observed prolapse in childhood.

Adler[2] in writing on "polypoid growths in children vs. prolapse" gives a short summary of the subject, his object being to call attention to the fact that polypoid growths in children are of much more frequent occurrence than is generally believed, and to emphasize the point that error of diagnosis are often made in considering such protrusions, when they occur at the anus, as cases of prolapse, which error in diagnosis the author believes is only possible by a failure to make a careful visual and digital examination of the parts concerned. He has seen almost twice as many children affected with a polypus as with a prolapsus, except those instances of prolapse caused by the presence of a polypoid growth, which, by dragging upon the gut-wall, has produced a prolapsed condition of the same.

Intussusception: A polypoid tumor may be the site, as well as the stimulus, for an intussusception. Various authors have referred to this association by reporting cases of children where the direct relation existed.

Coupland[19] describes "a case of intussusception of the ileum into the caecum through the ileocaecal valve associated with a polypoid tumor. Petrow[82] "in this interesting case, the patient presented symptoms of ileus; operation showed ileocecal intussusception apparently due to polypoid growths; at autopsy two additional intussusceptions were found; the intestine was found studded with polypoid growths; the growths showed incipient carcinomatous changes." Kassemeyer[54] (reviewed by Murphy[74(a)], "reports 224 cases of intussusception caused by tumors of which 116 were benign, and of the benign he found polyps and adenomata 73 times." Bratrud[15] writes on "Intestinal polyposis with report of case with three intussusceptions." Beyers[8] tells of an "intussusception due to polypus of small intestine," in a boy of 5 years, who suffered all of his life from gastro-intestinal attacks. Willis[109] mentions three cases of benign tumors in children—1 fibroma, 2 adenoma of the small intestine—collected in ten years, each in turn responsible for an invagination intussusception. As far as he knows only 17 authenticated cases of adenoma of small intestine associated with intussusception have been reported, addition of his two cases bringing total number to 19, up to that time. From literature he gives the following: King[58] 2 adenomata accompanied by intussusception Kasemeyer[54] 10 adenomata complicated by invagination. Scudder[90] 1 adenomata accompanied by intussusception. Watts[10] 1 adenomata accompanied by recurring intussusception. *Bratrud[15] 1 adenomata accompanied by recurring intussusception. Hartmann[44] 2 cases; Keilty[56] 1 case; Ludlow[67] 1 case.

*With this exception, the age or date of onset, appears later than 15 years.

Barrington-Ward[5] describes a case of recurrent enteric intussusception due to a simple tumor, in a child of 6 years, with symptoms for three years.

Wardill[106] states that "Lindsay and Perrin[63] have adduced evidence to show that the intussusception of infants is associated with inflammation of the lymphoid

tissue in the lower ileum, and they offer this as an explanation of the age incidence. Such an explanation is welcome. . . . . Moreover it puts the intussusception of infancy on the same footing as those associated with polypi and growths. If the explanation given by myself of relationship between the polypi and the bowel is accepted it is easy to see the mechanism of production of the ileocecal type of intussusception." Brown[16] brings to our notice an infant of 21 months who had an "invagination ileus in polyposis of small intestine." He says: " . . . The clinical history outlined in my case portrays two aspects of intussusception concerning which, because of their infrequency, a voluminous literature does not exist. One aspect is that the ileus was caused by a polyp or, more accurately, by a polypoid tumor within the intussusception of the ileum; the other that the recovery of an infant after resection for invagination ileus is a surgical curiosity. . . . ' "

PROGNOSIS AND TREATMENT.

Under pathology, prognosis is indirectly treated. Usually it is favorable, as the tendency of mucous polypus to become malignant is rather remote. Nature cares for the greater number of pedunculated growths, for by torsion and necrosis of the pedicle, the tumor is released and subsequently passed.

When surgical intervention is indicated, either the snare, simple excision or cautery may be employed. Where the unusual occurs—the sessile type or in instances where the growths are multiple—surgical interference is contraindicated.

CONCLUSIONS.

1. Benign tumors of the small intestines are more common than reports seem to indicate.

2. Intestinal polyposis is often the exciting factor in prolapse of the rectum and in intussusception.

3. The nomenclature of benign tumors needs revision.

4. Another cause for the appearance of blood, in appreciable amounts, in the stools is added.

5. The necessity for the removal of all masses when discovered—as some have a tendency to become malignant.

6. Three cases in children are added to the literature.

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DISCUSSION.

Dr. C. T. Williams (new Orleans): The condition of intestinal poylposis in children is, as Dr. Bloom has brought out, considered a rare condition. Most treatises on the subject merely mention it.

Personally, I have seen a few cases, and I was glad to note that Dr. Bloom brought out the fact that prolapse of the rectum is rather common. In the matter of etiology, trauma, inflammation, irritation and certain other factors like diarrhea, rectal atresia, or strictures of the rectum, these growths usually appear at sites of those conditions.

Dr. Bloom has so thoroughly covered this subject that I really have nothing more to say.

Dr. Cecil Lorio (Baton Rouge, La.): In view of the fact that this subject has been so thoroughly covered by Dr. Bloom, it will be only necessary to recapitulate a few of the symptoms and probable etiological causes of intestinal polyposis in children.

In regard to the etiology, it was once thought, probably 100 years ago, that there was a close simulation between status lymphaticus and intestinal polyposis because they were thought at that time to be an intestinal hyperplasia of the adenomatous tissue in the intestinal tract. It is also thought at the present day by even the clinics of Mayo that it is of the glandular type, a part of hyperplasia from some cause unknown. The status lymphaticus as a cause has practically been eliminated, although there is still some connection.

In regard to the location of the polypus in the intestinal tract, the Mayo Clinic report on adult patients (this may not be relative to the children) a predominance of four to one in the large intestine, but it also does occur in the small intestine, most commonly in the small intestine at the site of the ileum.

In the large intestine, the polypoid growths are located usually within one to two inches of the anus, so that it is usually possible to palpate these growths when they are present.

The symptoms are very few in polypoid conditions, usually bleeding with mucus on palpation. There is sometimes the symptom of tenesmus, but that occurs only in those cases in which the location is so close to the rectum that there is a continual trying to passage, and even after defecation there is the continual tenesmus present because of the presence of the foreign body. The bleeding may sometimes be so severe, as Dr. Bloom has said, as to simulate the cancerous or malignant type, more so, though, in the adult than in the child. In diagnosing polypus about the rectum and the anus, the method of diagnosis is usually that either the mother will tell you that material has passed from the bowel with bleeding, or you can do the proctoscopic or the finger palpation. As I have found in doing the proctoscopic, it is very difficult to make out the presence of a polyp through an infant size proctoscope, no matter how well illuminated, because if it is present it usually fills at the end of the opening of the proctoscope and it all looks about the same. The best idea you can get from it is the presence of the oozing of blood, which may give you some indication.

The finger palpation is the best. First of all, doing a finger palpation with a slight surve to the finger and sweeping around the bowel you will probably, if it is present, hook the polypus on to the finger, and you make a diagnosis that way. Or you may give an enema and try the palpation following the nemea. If that doesn't give results, then give the enema, leave the bowel as full as possible, then put the finger in. The polyp will be washed down with the stream of water and you may be able to make a diagnosis.

The treatment, of course, is removal.

Dr. D. N. Silverman (New Orleans): My excuse in discussing this paper is the similarity of childhood to adult life. I don't think we can separate children from adults in polyposis of the intestinal tract. The multiple polypoids are not extremely rare in adults, and they are found in young adults. I have seen them in the teens and in the early twenties. Evidently there has been an establishment of this pathology in many of these cases long before the onset of symptoms. Patients will soemtimes come in acutely ill, with apparently an acute abdomen and severe hemorrhage, and examination will reveal a multiple polyposis.

In adults these polypoids become malignant in forty per cent of the cases.

I think there is quite a difference between the single polypoid and the multiple polyposis. It seems to be an entirely different disease, although it is sometimes stated where you see one polypus there are others. But we do know that adults may have symptoms, such as bleeding and abdominal pains, and single polypus will be revealed and removed with good results.

In line with what Dr. Bloom said about familial tendency, I have had occasion to see two similar rectal polypi in two adults of the same family.

Dr. C. W. Duval (New Orleans): There are two points of interest to me in Dr. Bloom's paper which I would like to have him explain. One concerns the fate of the pedunculated intestinal polypi—did these tumors slough off as a result of a twisting of their pedicles, or were they removed at operation? Though Dr. Bloom did not say, I imagine that these growths were passed spontaneously from the bowel. The other point of interest relates to the nature of polypi, whether benign or malignant. Dr. Bloom leaves us with the impression that such growths may

become malignant. In this connection I wish to say that all polypi are benign and in a histological sense never become malignant.

Dr. C. J. Bloom (closing): I appreciate the frankness with which the various doctors have discussed my paper.

In answer to Dr. Duval's question number one, I did say that two of these polypi were passed without any surgical intervention whatsoever. I have slides of two of them in my pocket here that Dr. Lanford made, and the other was brought to me in such a state that I could not have it fixed.

In reply to his second question regarding the pathology, not being a pathologist myself I mentioned as one of my conclusions that it would be a good plan for the pathologists to get together and revise the nomenclature of tumors of the bowel. If the average physician can conclude, from the various articles that I have read, anything that is tangible as to whether these are potentially benign or malignant, he can do a bit more than I have been able to do because I have been going over the literature on this particular subject since last summer. It is the most confusing lot of literature regarding the pathology that I have ever read. It is stated, and I can give the statistics, that these do at times become malignant, and under other pathological headings it is stated that these are benign tumors; so there is something at fault.

I would appreciate it if Dr. Duval would help to do something I have suggested, revise the classification of the nomenclature of these tumors of the intestinal tract.

Dr. Duval: I wanted to know how spontaneous cure took place in the two of the three cases in children. You said they were passed, but you didn't explain.

Dr. Bloom: As both of these children survived, I am at a loss to explain exactly how it took place. I have been able to make conclusions from three cases, that they turn on themselves and twist, become necrotic, and the pedicle separates from the bowel.

Dr. Silverman: I saw an adult where an ulceration dropped off.

JAUNDICE.*

STEWART R. ROBERTS, M. D.

ATLANTA, GA.

The bile is a secretion of the liver. To secrete bile is only one of the several functions of the liver "for there is no process within the province of metabolism in which the liver does not intervene." It apparently carries on its several functions at the same time, and so far as is known, in the same cell. One function may cease and others continue.

The average liver weighs fifty ounces and is one-fortieth of the body weight in the male and one-thirty-sixth in the female. This gland, embryologically, is the first to develop; anatomically, the largest to grow in the embryo and in the adult; and histologically, the most difficult to know. It secretes on an average from 500 to 1100 c.c. of bile in the twenty-four hours. Moreover its several activities depend upon a blood supply nearly entirely of venous, non-oxygenated blood from the portal vein flowing in constantly from the tributaries of the stomach, spleen, pancreas and intestines. The amount of arterial oxygenated blood that reaches the liver from the hepatic artery is relatively small as compared with the far larger amount of portal blood. Far less arterial blood, despite its far greater size, is supplied the liver than is sent either to the spleen, the pancreas or the kidney. All this double blood supply is gathered up by the hepatic vein and delivered to the inferior vena cava and, by way of the right heart and the lungs, reaches the systemic circulation.

Clinical medicine has probably overaccented the bile-secreting function of the liver, but the relation of bile to jaundice, the striking tints of yellow and green that color the bile, the gross ease with which a stool can be examined even by a patient for bile, diseases of the bile ducts with white stools and yellow skin, and the glamour of a super-

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stitious therapeutics that surrounds drugs supposed to act upon the liver in producing more green bile, may in some measure account for this. It is very doubtful whether bile would ever have had the importance it has in clinical medicine if it had contained no pigment. This alkaline bile is 97.5 parts water, 0.5 parts pigment and mucin, 1 part bile acids and 1 part fat in the form of cholesterin, lecithin, and soaps —and mere traces of mineral salts in the form of chlorides and phosphates. The three chief solid constituents of bile are the bile pigments, bilirubin and biliverdin; the sodium salts of the bile acids, taurocholic and glycocholic acid; and cholesterin. The latter is of importance as the chief constituent of gall stones. The first two, the pigment and the bile acids, are of importance in jaundice, which can only be understood in terms of the origin, transfer and excretion of the pigments. It is this pigment which gives the lemon-tint delicate jaundice of a pernicious anemia, and, in larger amount in the blood and tissues, the rich yellow of an obstructive jaundice.

The pigment of bile is paint and color, and nothing more. Bilirubin is of a reddish yellow color and is most evident in a semi-liquid stool of a brisk purgation. Biliverdin is the pigment of green bile that is so dear to the vision of a bilious patient, and is nothing more than the oxidation product of bilirubin, which in alkaline solutions will oxidize into biliverdin merely on exposure to air, or on exposure to sun light alone. The bile of the carnivora is usually golden from the bilirubin, and the herbivora green from the biliverdin. Both may be present in human bile. The pigments are to be regarded as waste products, excreted by the liver, the result of and an index to the disintegration of the hemoglobin from the destruction of the red corpuscles. They serve no purpose in digestion. Bilirubin is present in the blood in health. The yellow color of the plasma is due to it. It is present in the blood in from one part to a million to one part in 500,000, or from .1 to .25 mg. per 100 c. c., or 1 to 3 mg. per liter of blood. It is present in the blood in jaundice always in excess and seems to be deposited in the tissues in threshold value of one part in 50,000. There is probably an excess of bilirubin in the blood before jaundice appears, and its deposit in the tissues and excretion in the urine prevents a higher proportion in the blood. Hyperbilirubenemia may exist in cholecystitis, pneumonia, impaired renal function even without hepatic disease, in pregnancy, and in the new born. In obstructive jaundice pigment appears in the urine when the concentration in the blood exceeds one in 50,000, but strange to say, in hemolytic jaundice the concentration may be one in 12,000 and no pigment escape in the urine. This variation in the renal threshold thus far is not explained. In the intestine, bilirubin is acted upon by the putrefactive bacteria and changed into urobilin,—about one-fifth is absorbed, and appears in the urine as urobilogen. There is four times as much in the feces as in the urine.

The source of bile pigment is the hemoglobin of the red blood cells. The estimated life of a red corpuscle is six weeks, so that a continual supply of raw material is available. Hemoglobin is the normal pigment of the red corpuscle and is composed of an albuminous substance called globin, and an iron containing pigment, hematin. The globin is digested and absorbed. The hematin in turn is split into an iron free pigment formerly called hematoiden, but which is really bilirubin, and an iron containing substance, hematoiden, which is stored in the liver, spleen, and bone marrow as raw material to be included again in the new red corpuscles. The hemolytic organs are the liver, spleen, bone marrow, kidneys, and lymph nodes. The worn out corpuscles are taken up by the endothelial cells and other phagocytes of the circulation. A subcutaneous hemorrhage in a white skin shows, in its gradual absorption, the yellow and green colors of the bile pigments. Occasionally in an old thrombus or hemorrhage, the pigment, in the form of crystals

and granules, may remain for years. Virchow, in 1847, showed that bilirubin is found in such old blood extravasations, that its deriviation is from the hemoglobin, and that it is, to this extent, certainly formed outside the liver. Rich summarizes these facts, as follows:

(1) "That hematin and bilirubin are closely related chemically;

(2) "That hemoglobin spilled into the tissues almost anywhere in the body may be transformed locally into bile pigment; and

(3) "That the presence of an excess of hemoglobin in the circulation whether introduced in pure form experimentally, or liberated during hemolysis in pathological conditions, is regularly followed by an increased formation of bile pigment."

Mann and his associates by the operation of hepatectomy, or complete removal of the liver, showed that in six hours the animal was jaundiced and proved that the greater portion of bile pigment is formed outside the liver. Bile pigment is of extra-hepatic origin except in exceedingly small amounts that may be gathered by the endothelial, or Kupffer cells of the liver. Contrary to the old conception, the epithelial cell of the liver does not make bile pigment. The old conception assumed incorrectly that obstructive jaundice was due to the accumulation of bile pigment in the liver cell, and if the outflow of bile was prevented, the bile was reabsorbed through the blood and lymph until jaundice resulted. The present conception assumes that the pigment is made outside the liver and is simply excreted by the liver cell. The liver cells have the power to take up bilirubin easily from the blood and excrete it, except when they are injured as in pneumonia. Obstructive jaundice prevents the excretion of the pigment by the liver cell, and the reabsorbed pigment in the blood has already been through the liver cells. It is to be remembered that bile pigment is soluble in an alkaline watery medium. As it increases it permeates the tissues rather than stains them except in the case of the connective tissues. After death it may stain all the tissues. The greenish hue in long standing jaundice is probably due to the oxidation with change to green of the bilirubin. If there is damage to the liver cells, as in typhoid or in arsphenamine poisoning, the liver cells become relatively incapable of transferring the pigment from the blood to the bile in the bile capillary. Differing from obstructive jaundice, the bile pigment does not get through the liver cell in normal amounts.

With the site of the formation of bile pigment definitely fixed in the bone marrow, with hemoglobin proved to be the source of bile pigment, with the blood stream as transfer agent to the liver and the liver cell, and the latter as the removing agent from the blood and the excreting agent to the bile, a more correct classification of jaundice became possible. The yellow skin, the white stool, and the dark urine are gross proofs of jaundice. With the discovery by Van den Bergh, the physiologist of Holland, that the diazo reagent formerly used by Ehrlich as a test for typhoid fever, reacted with characteristic colors in solutions of bile pigment, a quantitative and qualitative test is of value in a classification of jaundice, and directly related to clinical conditions. The test applies only to bilirubin and not to biliverdin. It is qualitative in that it determines whether the pigment is of type 1, in excess on account of obstruction and has been through the liver cell and hence modified in some way, or type 2 and not modified. It is quantitative in that it determines the exact amount of pigment per 100 c. c. of blood. A Van den Bergh unit is one part of bilirubin in 200,000 parts of blood. The icterus index is a much simpler test, quantitative only, which by color comparison, gives a rough estimate of the amount of pigment present or the degree of jaundice. The normal icterus index is between four

and six comparative color units; in latent jaundice, which is an excess of pigment in the blood without jaundice, it is between 6 and 15; and above 15, jaundice is evident, clinically.

The bile acids are present in the bile as the sodium salts. They hold the cholesterol and lecithin of the bile in solution and seem to assist in the emulsification of fats. The origin of the bile acids is not definitely known, but the weight of evidence points to the liver cell as the producing agent. Their physiology is certainly lacking. Aldrich at the Mayo Clinic has so standardized the old Pettenkofer reaction for bile acids that Rowntree now considers it simple and clinically applicable. It will probably come into clinical use. Bile acids seem increased on a meat diet and decreased on a sugar diet, and are continually excreted in the bile and reabsorbed from the intestine, the so-called "circulation" of the bile acids, and, taken by mouth they are promptly eliminated in the bile in six hours. Cholic acid is all important for their formation, but nothing is known of its formation. Bile acids seem continually formed in the body. They are the only active cholagogues and on injection, increase the quantity of bile without an increase in the concentration of the bile salts. The cholagogue action of any claimed cholagogue "fades by comparison with the action caused promptly by bile salts."

Bile acids were formerly supposed to cause the pruritus and bradycardia of jaundice, but Rowntree and his school have evidence against this, and have proved that they may be increased in the absence of jaundice. In obstructive jaundice acids accumulate very rapidly in the blood, often five times above normal, and this increase is associated with bilirubin concentration and dye retention. Bile acid content fluctuates but returns to normal ahead of the bilirubin or the dye. Obstructive jaundice alone seems to show this increase in bile acids. The weakness, prostration, stupor and coma of hepatic dysfunction has been related to the bile salts.

The following classification harmonizes both with clinical experience and our present knowledge of the physiology of the liver and bile pigment:

(1) Obstructive hepatic jaundice, with the causes divided among:

(a) Changes within the ducts, as stone, mucus, parasites;

(b) Pressure from without, as new growths, nodes and adhesions;

(c) Stricture, kinking or twisting of the duct. The icterus index is usually above 15 and the Van den Bergh is immediate direct. The bilirubin may react as high as 50 units. Four units are present before the pigment appears in the urine. Bile acids in the beginning are in excess, but their production soon ceases, though the bilirubin continues to be formed, accumulates in the blood and is excreted in the urine. Dye retention is increased and the fragility of the red corpuscles shows increased resistance to hemolysis. The cholesterol content is increased. The urine is acid, decreased in amount, bile stained before the skin, yellow to olive to brown to black, and may contain albumen, casts, and excessive indican. The specific gravity of the blood is increased and the bleeding and coagulation times are usually prolonged due to a reduction of calcium in the blood.

Artificial light rarely reveals jaundice. Pain may be present or absent. There seems to be no proved causal relation between excess bile salts and itching. The leukocyte count is not increased by jaundice alone, though if prolonged the red corpuscles may be reduced. The sweat may be stained, but the tears, saliva, milk and cerebro-spinal fluid usually escape. The pulse may rarely be slow, but not so usually as was formerly taught. The liver is usually enlarged due to distension of the bile ducts, and the lower border may be one or two finger breadths below the costal margin. It

is a passive congestion due to bile instead of blood as in the larger liver of heart failure. Constipation and flatulence are the rule. The stools are white from the absence of bile and the excess of undigested fats. Headache, drowsiness, and weakness may increase to delirium and stupor. Cholemia, hepatic insufficiency, or liver failure are terms used to describe this usual terminal state.

(2) Toxic and infective hepatic jaundice is the symptom of some condition or disease which has damaged the liver cells in variable mass and degree. The damage varies from a little cloudy swelling to fatty change to necrosis. It occurs in pneumonia, yellow fever, septicemia, peritonitis, syphilis, infectious or epidemic jaundice, in chronic heart disease, in mushroom, chloroform, phosphorus, and arsphenamine poisoning, in acute yellow necrosis, and in jaundice of the new born. It is probably the most common type of jaundice.

The liver cells are poisoned, histologically changed, and their normal function so altered that they are relatively incapable of removing bilirubin from the blood and excreting it into the bile capillary. The bilirubin does not go through the liver cell in normal amount. It consequently accumulates in the blood, and stains the tissue. It is a true liver jaundice as distinguished from an obstructive jaundice. The icterus index is increased. The Van den Bergh reaction is indirect and present only with the addition of alcohol to the test blood serum. An obstructive element may also be present in the liver, from an inflammation of the bile ducts, and the so-called biphasic reaction may occur—a prompt reaction, from the bilirubin in the blood due to the obstruction, but the bilirubin, accumulated in the blood from liver damage, *i. e.*, bilirubin that has not gone through the liver cell, may give a delayed direct reaction.

The degree of jaundice is not related to the severity of the general condition. The jaundice may be slight and the liver damage severe. The bilirubin in blood and urine is usually less than in obstructive jaundice. As a rule, bile continues to reach the intestine so that the stool is not white and fat is digested. However, the clinician may know from the appearance of the jaundice, proved by proper study, that a degree of liver damage has occurred. The strength of the patient should be conserved and severe purgation avoided.

(3) Hemolytic jaundice is a condition in which bilirubin is formed faster and in larger amount than the liver cells can take it from the blood and excrete it into the bile. Abundant pigment may be present in the blood and none in the urine. There is no obstruction in the biliary tract. It is a true blood jaundice. The bilirubin is from extra-hepatic sources. Blood destruction and bilirubin production is in excess and the condition of hyper-bilirubinemia is present. There are two chief varieties:

(a) Primary hemolytic jaundice, as illustrated by familial jaundice, whose chief qualities are its chronicity, the increased destruction and fragility of red corpuscles, the absence of retained bile salts, the so-called acholuric jaundice, and splenomegaly. It is cured by splenectomy.

(b) Secondary hemolytic jaundice, as illustrated by pernicious anemia, and transfusion hemolysis because of blood from an unsuitable donor; starvation jaundice; and malaria. The icterus in pernicious anemia averages 10, and in secondary anemia only 3.3, which is evidence of the hemolytic nature of the former, and its absence in the latter.

In any classification of jaundice there will be much overlapping. The evidence separating one type from another is not so sharp in the patient as in a table. Nature is not nearly so schematic as we are and arbitrary divisions often become more vague at the bedside. The newer conceptions of the functions of the liver, the origin of bilirubin and the mechanism of

jaundice are relatively recent and leave many facts to be desired. However, a great advance has been made over the old knowledge of clinical jaundice, for there is much more to be learned about the condition than we thought. A case of jaundice is now a patient to be studied. In addition to the methods of clinical medicine, the contributions of the laboratory permit accurate study and accurate conclusions, where formerly either clinical patience on the one hand or a diagnostic operation on the other, were our limitations of service. And even so simple a test as the icterus index is valuable in conditions other than jaundice.

It is perhaps profitable to outline the steps to be taken in the study of a case of jaundice, particularly when the nature of the jaundice is in doubt and the plan of treatment undecided. All of these are not necessary in every case and rarely all in any case, but from them one may choose within the limits of his needs and opportunities what should be done to reveal the cause and nature of the icterus. With experience the liver will become more familiar clinical ground because the laboratory affords facts that permit clinical conclusions. Jaundice, even though it may be a condition or just a symptom, is a sign to be explained, and that without loss of time.

(1) To develop a liver mind and to consider jaundice a condition that invites investigation and interpretation. There is much more to jaundice than a yellow skin.

(2) To think in terms of the classification and causes of jaundice—obstructive, toxic, hemolytic.

(3) To think in terms of the cause of jaundice in any given patient.

(4) To plan the management and treatment on the basis of the pathology.

(5) To realize that cases of obstructive jaundice are chiefly surgical after medical study, and that toxic and hemolytic types are usually not surgical—with rare exceptions—as splenectomy in Banti's disease and acholuric jaundice.

(6) To examine the abdomen carefully and outline the borders of the liver, and to watch for changes in the size of the liver.

(7) To determine whether jaundice is acute or chronic, epidemic or non-epidemic, painful or painless, familial or individual, with or without fever, with or without leukocytosis, with or without bile in stool and urine, with or without anemia.

(8) To use the icterus index, the Van den Bergh, the dye retention, the fragility of the erythrocytes, the coagulation time of the blood, as necessity demands and opportunity permits. The test for bile salts in both blood and urine will probably be increasingly used.

(9) Operation in obstructive jaundice is inadvisable with a coagulation time longer than 9 minutes. Preparation with intravenous calcium, glucose, and in extreme cases, transfusion have reduced the mortality from 9 to 3.5 per cent.

(10) The passage of the duodenal tube reveals definitely whether or not any bile is reaching the intestine.

(11) Purpura and blood extravasations prove disturbed coagulation time and injury to the capillary wall.

DISCUSSION.

Dr. S. Chaillé Jamison (New Orleans): It would be impossible to discuss such a masterpiece as Dr. Roberts has just presented. I may, however, attempt to accentuate a few points that he has brought out.

First, in considering icterus, I should like to draw your particular attention to the icterus index. This gives us a knowledge that the patient is jaundiced before we can possibly see it. That is, the icterus index is not present in jaundice until it has gotten to at least what is called fifteen units. There is that distance, then, between the normal and the actual appearance of jaundice, the difference between six and fifteen. For instance, we may have an icterus index of ten which we are unable to detect, yet which has the significance the jaundice would have.

Let me point out again, please, the importance of the proved fact and the newer conception of bilirubin. Bilirubin is a product made from the red blood corpuscles by the cells of the reticulo-endothelial system. This system breaks up the red blood corpuscles, or uses the red blood corpuscles in such a manner that the bilirubin is removed. The bilirubin is then carried by the blood to the liver. You will notice that the liver itself has nothing whatever to do with this formation of bilirubin except in so far as the liver contains a certain number of the so-called Kupffer cells which are a part of the reticulo-endothelial system.

Dr. Roberts' classification, then, helps us enormously in the understanding of jaundice. We have, first of all, the obstructive jaundice which, as he said, was purely a tubular jaundice. We have next the toxic jaundice which is indicated to us by the accumulation of bilirubin in the blood. This accumulation, however, is not necessarily due to any increase in the destruction of red blood corpuscles or increase in the bilirubin, but is merely due to the fact that the liver cells are unable to pass it through. That is all. It is an indication, then, of the extent of poisoning of the liver cells.

Finally, we have a hemolytic jaundice which is due to a great destruction of red blood corpuscles, and therefore a great formation of bilirubin in excess of that amount which the normal liver cell can excrete. It therefore accumulates in the blood.

Theoretically, then, with the aid of the Van den Bergh reaction we should be able to say exactly whether the obstruction is in the bile ducts, whether it is due to poisoning of the cells, or whether it is due to an overproduction of bilirubin. This is true in a certain number of cases. Unfortunately, there is a considerable amount of overlapping, and the Van den Bergh reaction, in spite of its very great value and very great help, does not entirely solve the problem.

Dr. J. Holmes Smith (New Orleans): Any remarks which I have to make will be based largely upon the clinical side rather than upon the laboratory side.

It has been my pleasure in the last few years to work in two large clinics of the Charity Hospital, one of them devoted entirely to the colored, and the other to the white.

I have been impressed with several facts: First, the prevalence of jaundice in the negro. While I have no statistics upon which to base any statements, I believe that it has been more prevalent amongst the colored patients presenting themselves than amongst the whites, some of the patients in the Out-Patient Department having jaundice as the only symptom and no other clinical sign. They may come into the clinic intensely jaundiced, no nausea, no vomiting, no tenderness over the liver, and after the most elaborate examination, laboratory tests, and so forth, we are no further along than we were in the beginning and the patient proceeds to get well. We don't know what the cause of the jaundice might be.

I have been extremely interested in the Van den Bergh test, in the icterus index, and other tests of liver function. Personally, I am inclined to think that the Van den Bergh test is the most reliable because it represents a definite chemical reaction and is not based solely upon color change.

Endeavoring to follow the icterus index on certain patients, I began collecting blood in an effort to study slight jaundice and latent jaundice, and I was very much surprised, on a number of cases, to find individuals who had no jaundice at all but the icterus index would be around 25, 30 or 40. I then learned that it was probably due to some error in technic, such as enough water in the syringe to cause hemolysis. My reason for bringing that up is this: We send our patients to the laboratory. Frequently the syringe is withdrawn direct from a sterilizer, and when the blood withdrawn, water is present and causes hemolysis and anspicterus index.

I am not wishing to decry the value of the icterus index. I think it is very important, but what I wish to emphasize is the necessity of due care in the technic.

Another thing with regard to the prevalence of jaundice in the colored race is the possibility of syphilis as an etiological factor in many of these individuals. I have found jaundice present in about five patients presenting a positive Wassermann out of many, many hundreds who have had the Wassermann and large numbers who have had jaundice. I do not think the jaundice accentuates the Wassermann at all. If anything, possibly from the presence of cholesterol, it tends to make an otherwise positive test negative. I am wondering whether or not quite a few of our cases of jaundice in the negro are not due to syphilis even though we may have proof of it.

Dr. J. Birney Guthrie (New Orleans): We have listened to a very important paper. We have listened to a most beautiful statement of a classification of jaundice that is accepted the world over today. It is, I believe, the classification of McNee and has been accepted by the medical world.

We have heard from Dr. Roberts the necessity for modifying our ideas of jaundice. As he says, we have to become truly liver-minded, and when we become liver-minded we become reticulo-endothelial-minded by the same token.

It is a little startling, when we consider the subject of the serological reactions in a disease like typhoid fever, to learn we are dealing with a disease that constantly and practically always is accompanied by jaundice. If we heard the same thing said about malaria, we would say we knew that always. There hardly was a time when we studied anything medical that we didn't know that with malaria. We expected that, but do we expect it with typhoid fever? Did we know about it as regards half a dozen other diseases? We know yellow fever is a jaundice disease; we can see that; it is yellow. There is a progressiveness and a severity of jaundice that could not possibly escape observation, but here we have in these delicate reactions, the Van den Bergh on the one hand with the observation of the Ehrlich test, and the icterus index, by which we have a means of arriving at the status. Even though they don't satisfy our entire needs, these two tests have made us, as the doctor says, liver-minded. We are now keen to find out what is going on in this great collection of cells, the reticulo-endothelial system, what goes on in the liver, and what goes on as regards the retention of bile pigment in the blood is a very prominent indication thereof.

I can't do more than urge the acceptance of this classification. It isn't just an accidental thing. It isn't a thing that Dr. Roberts has worked out over there and comes here to try on us. It is an accepted, classical view of jaundice. If we don't accept it, we will simply have to take a back seat as regards the clarification of our ideas on the subject of jaundice.

Dr. Stewart R. Roberts (closing): I thank Dr. Knighton for his suggestion, but I had finished the paper. I haven't finished the subject because it is so profound that I doubt if any of us have really yet begun to study it.

Osler said if a practitioner did not continue to study five years after his graduation he would know less than he did when he graduated. I think that is particularly true today of the medical graduates from such schools as Tulane and other Class A schools in the country, who are the best trained men in medicine that the world has ever seen. I am sure if one of us doesn't study a subject in medicine or surgery for five years it will long ago have made such progress that he will be relatively ignorant. I have waked up to feel that that is somewhat our condition as regards the liver.

To quote a phrase in the paper that my friend used here, "We are not liver-minded," we have dismissed yellow jaundice as we have mumps, more or less, with a smile.

I don't know but that Dr. Smith is right. In my experience, jaundice is more frequent in the negro than in the white. I have felt that gall-stone colic was not as frequent in the negro as it was in the white, and certainly the negro did not seem to suffer as much with gall-stones as did the white. Whether that is a fact or an impression, I do not know, but racial relations to pain are very interesting. A friend of mine has just made the statement, after five years in China, that the Chinese do not suffer with angina pectoris.

The surgeon has been so interested in the gall-bladder, either getting its contents out, or it out, that he has neglected the liver; and the internist and the general practitioner have been so interested in passing to the next patient and studying the liver, or neglecting the liver, that they have not thought very much in terms of gall-bladder pathology.

The lesson to me in this matter is plain, that we must think in terms of liver pathology. If one will get the last edition of Bass and Johns' Laboratory Manual, or Todd and Sanford's Laboratory Manual, and look up some of these new tests and do them a few times himself, particularly the icterus index test, he will awaken very personally to the value of the new work that has been done. The leaders in the work have been McNee and Rolleston in England, Whipple in New York, and the Mayo Clinic as previously stated.

I am constrained to believe that there is more jaundice than we realize; that we have looked upon jaundice as a thing to come in with a great yellow color. But there are all degrees of jaundice just as there are all degrees of insanity.

Since we have been studying the question of jaundice, we have found many more cases in our practice than we had heretofore suspected. We must realize, too, that jaundice of itself does not constitute a disease, but mere a sign and a symptom that calls for diagnostic study and some intellectual activity.

THE MANAGEMENT OF PNEUMONIAS IN INFANTS AND CHILDREN IN THE AVERAGE HOME*

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We have learned to prevent, to a great extent, the diarrheal diseases of infants and children, which until a few years ago was our greatest problem. Now, the greatest problem is that of acute diseases of the respiratory tract. The mortality of infants and children a few years ago was in the summer months. Now, the winter and spring months are the leaders. The Chicago Pneumonia Commission found that, in children under five years of age, respiratory diseases with their complications, as otitis media, mastoiditis, empyema and other frequent complications required a great deal of attention to reduce the mortality. Out of six thousand cases of pneumonia studied, fully one-third occured under five years of age. There are, as we all know, two main forms, (1) bronchopneumonia, (2) croupous or lobar pneumonia, not forgetting (3) chronic interestitial pneumonia and (4) hypostatic pneumonia. Although we make the two main classifications, there is no doubt we have, more often than thought, a combination of the two. This has been proven at autopsy. In studying the analysed cases, we see bronchopneumonia the leader in the first two or three years of life. Seventy-five per cent of the cases occuring before two years of age, being bronchopneumonia, and most frequently in delicate infants. After three or four years of age, the primary form is seldom seen. The secondary form is especially prone to follow in the wake of such diseases as influenza, measles, whooping cough, or any other upper respiratory infection; not forgetting typhoid fever, rickets, syphilis and gastro-enteritis.

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The infecting germ is mostly the pneumococcus of Frankel in primary cases, while in secondary forms the streptococcus, staphylococcus or pneumococcus is most common. However, the colon bacillus, Micrococcus catarrhalis, diphtheria bacillus, or typhoid bacillus may be the cause. The tubercle bacillus is usually in combination with some or all of the others.

Pathologically, the whole respiratory tract is usually involved, extending from nasal passages to the bronchopulmonary tissue. There is first an involvement of the mucous membranes, then the deeper tissue, and no doubt, if we could see all along the bronchial tree, we would find swelling, exudations, distortions, atlectasis, as well as bronchiectasis and spasms of the bronchioles, due to the irritation of the respiratory nervous system.

As a rule, the onset of bronchopneumonia is gradual and usually preceded by some slight upper respiratory infection. When first seen, the baby may not look very sick, but in a short time the whole picture changes to one of a very sick baby. The cough becomes more harassing with or without a great amount of bronchial secretions. This is either swallowed or brought up with such little force as to allow it to fall back along the bronchi. We must not look too lightly on bronchopneumonia. It is very serious from the start, and requires careful watching and treating from the very beginning. Remember that respiratory failure is usually the cause of death in this type of pneumonia.

It is not always easy to make a diagnosis of bronchopneumonia in an infant, as the findings vary with the extent of involvement of the broncho-pulmonary system, the size of bronchi affected, the location with reference to the surface of the chest and the swelling and spasm of the bronchi. As a matter of fact, these findings may not differ from an ordinary bronchitis. If your little patient looks very ill and the temperature is running

too high for ordinary bronchitis, I think we are safe in making a diagnosis of bronchopneumonia. The severe types of bronchopneumonia should not give us any trouble in making a diagnosis. The objective symptoms alone, as the general expression of the child, high fever, panting respirations, cough, cyanosis, crepitant and subscrepitant rales, especially when localized, even without consolidation, should make the diagnosis positive. Your white blood cell count, when possible to make, should be of great help to you. The total white cells are always much higher than in bronchitic, 25,000 to 45,000 in bronchopneumonia.

During the course of the disease we must be on our guard for one or all of the most common complications; as empyema, middle-ear infection, pyelitis, nephritis, gastro-enteritis, pericarditis, pulmonary abscess and meningitis. If, during the course, the temperature has subsided for a day or two and then suddenly rises, or even during the ordinary course you have a sudden, sustained rise of fever with an increase of the toxic symptoms, you had better look for one of the complications mentioned. Of course, we do have, at times, uncomplicated relapses or recurrences, but so rare we had best search for a complication. A low temperature is usually an unfavorable sign.

In treating bronchopneumonia, the essential point is prevention. Every child with measles, whooping cough, influenza, bronchitis, rhinitis, laryngitis, tonsillitis; in fact any child with any severe upper-respiratory infection, should be handled as a potential, first-stage bronchopneumonia. Every child with any of these infections should be kept in bed and treated as if they had a bronchopneumonia. This alone, I believe, is our greatest mode of prevention and reduces the morbidity more than any one thing. We all know how hard this is to carry out in the average home. The general care of your patient, after your diagnosis of bronchopneumonia is made, is not to be limited to treating the disease. We must treat the child and parents as well. Keep a careful watch on the toilet of the mouth, nose, skin, kidneys and bowels. The condition of the mouth is one of the best guides, not only of your successful treatment, but of your nursing. There is no disease where nursing plays a more important part than in bronchopneumonia. Do not exhaust the patient by too much attention. The food should be given a great deal of thought. I find a high carbohydrate diet, such as cereal gruel, with boiled skimmed milk, cooked fruits, and an abundance of fruit juices most satisfactory. The citrus fruit juice serves you well in combating your acidosis. Judgment is always to be used in feeding these cases; the age of the child as well as its digestion being your guide. Keep your patient in a quiet room and, above all things, free from crowds and too many would-be nurses and solicitous relatives. The air should be fresh, moist and warm, with all the sunshine possible. Do not forget that these little patients are just as susceptible to nerve-disturbing elements as any of your adult patients.

There is much for the physician to do, and still more for him to see that is not done. He must have 100 per cent cooperation. Most of us are in accord on the subject of the application of counter-irritants to the chest in broncho-pulmonary infections. I sometimes use a weak mustard plaster in the very beginning, but wonder if the results are not based more on tradition than on scientific reasoning. I never insist on any of this treatment; on the other hand, condemn it if it is the least bit disturbing to the patient. Cupping is used by some good men. I have tried it, but always felt that I had done more harm than good, as it frightens the child, irritates the skin and has neither direct nor reflex beneficial action. The greatest place for using your diplomacy, and doing a great good thereby, is when you can successfully stop or prevent the application

of the different medicated oils; as camphorated oil, mustard oil, turpentine, kerosene, mutton suet, peach-tree poultices, saying nothing of the propriety preparations. We should all be diplomatis enough to stop them. What could be more nauseatingly disgusting to any of you than to have an inflammatory condition of your pulmonary mucous membranes and then have to breathe the obnoxious fumes from these concoctions? The real object of our treatment is to keep our patients comfortable, in an atmosphere of warm, fresh, soothing air, and not have him bathed in an ill-smelling, pungent, nauseating air, coming from his own body, irritating more and more the delicate, inflamed mucous membranes of the respiratory tract. Before any of you again use any heavy application to the chest of these little fellows, (such as the medicated muds), you should recall the laws of physics and figure the number of hundred pounds being handled by the chest muscles in these fellows in the course of twenty-four hours. When we have a diffuse bronchopneumonic process, with poor peripheral circulation, a weak mustard plaster or mustard mixed flax-seed meal made into a paste and applied warm all around the chest may do some good. In the milder cases, the only application needed is a good, soft, snug fitting, woolen shirt, which can be easily and frequently changed, as well as allowing us fr. access to the chest with least disturbance to the patient.

Many of us are too prone to make too many and frequent examinations. It does no good, and frequently does great harm. Most of these little fellows are very excitable and nervous. These frequent examinations will only exert them and put an extra burden on the already over-burdened heart. The temperature in bronchopneumonia, being of a remittent, vascillating type, hyper-pyrexia rarely requires but little hydro-therapeutic attention. This is in contrast to the fever of lobar pneumonia. These little fellows being so easily disturbed, I feel the only thing necessary is our routine daily bath with tepid water. In the severe cases, a warm, diluted alcohol sponging may reduce the temperature and allay the restlessness. Where this fails to control this condition, and you have a vigorous, robust child, the application of compresses to the chest, made by dipping several layers of soft linen into cold water and applying snugly to the chest, covering with a layer of flannel, apparently does good, if changed every hour or two. Watch the bowel elimination. See that we have at least one good movement every twenty-four hours. Frequent bowel irrigation as a routine are to be condemned. I see no need or indication for it. If one good movement a day, do nothing. Calomel, followed by oil should have no place here. To keep up a good water balance to flush the system and dilute the toxins, if such be possible. The nurse if properly impressed with the importance of fluids, can usually give enough by mouth. Milk of magnesia or an enema will usually be all that is needed for the bowels, and will disturb your patient very little. Drastic purgatives deplete the child and add additional hazards. When we have a dry, harassing cough from laryngitis and tracheitis, medicated steam inhalations, if properly administered will give you much relief. When using, guard against overheating or burning your patient.

When our little patients are extremely toxic, restless and becoming dehydrated, and we are unable to get them to take enough fluids per mouth or by proctoclysis, do not wait too long to give your fluids by other means. Glucose and salt solution, either by hypodermoclysis or into the peritoneal cavity, if you are sure it will not embarrass respiration, is the best method. Be careful not to over-do this, as you might get an excess of fluids, thereby bringing an extra burden on the already over-burdened heart. When we have a hyperpyrexia—105° to 106° F.,

the baby very restless and unable to be controlled by sponging, we are possibly justified in giving one or two doses of aspirin or phenacetine, this rarely ever to be repeated. This may temporarily reduce the temperature, but there is most always a reaction with a higher temperature and general depression.

Very few, if any drugs are necessary in treating the ordinary case of bronchopneumonia in early life. In mild cases, potassium or sodium citrate with paregoric or Dover's powders in proper doses and at the proper time is all that is necessary. In the severe types, atropin, alcohol, digitalis, codein and nitroglycerin are the essential drugs, of course, only to be used when indicated. Atropin stimulates the respiratory system, dries up excessive secretions and relaxes bronchial spasm. In small doses it does not paralyze the vagus, but acts as a vagus stimulant, causing a slowing and strengthening of the heart. Digitalis supports the cardio-vascular system. Codein quiets your patient, allays the cough and restlessness, eases pain, diminishes bronchial secretions, as well as being one if not our best heart stimulant to an over-worked heart. Alcohol is always valuable, the dose to be regulated by the age and condition of the patient. Nitroglycerine may be tried in 1/200 gr. doses where the heart is extremely overburdened. There is no place for these harmful, nauseating, so-called cough mixtures. The main object of this paper is to plead with you for less drugging. The good from the use of oxygen inhalations is yet questionable. Personally, I have met with disappointment in all cases where I thought oxygen indicated. Where we have a well-ventilated room with a constant current of fresh air, we should have enough oxygen, if oxygen be all that is necessary. Vaccines are only mentioned to be condemned. We are living in great hopes that a specific antibacterial serum, such as one being worked out by Parks, Bullowa, Rosenbluth and Cecil will give us great aid, if not a specific, for pneumonia.

Blood transfusions, in many of our severe cases, should be life-savers. Since the report of 273 successful intraperitoneal blood transfusions by Cole and Montgomery of Detroit, I feel we are justifiable in doing this much oftener than heretofore. It is so simple that it can be done in the average home. However, the ideal place would be in the hospital. I have had most gratifying results in the several cases I have transfused by this method during the past year.

The complications such as bronchiectasis, empyema, lung abscess and gangrene are the most important, and should be handled by the surgeon. The delayed resolution cases that terminate in fibrosis or tuberculosis should be kept quiet and in open country with plenty of nourishing food, cod-liver oil and tonics.

LOBAR PNEUMONIA.

Lobar pneumonia is a general infection, the main pathology being an inflammatory process of the lungs. Death is usually due to cardiac failure. The onset in lobar pneumonia is more sudden, with a shorter course and more rapid termination. The disease is caused by the same organisms as bronchopneumonia. It is more common in healthy, robust children than in weak, delicate children. The diagnosis is easier to make by the sudden onset of high fever, restlessness, rapid breathing, painful, pleuritic cough, etc. The physical signs may be very misleading, as they show great variations as to time of appearance, (early or late). The symptoms and physical signs may not correspond at all, and if we are not very careful we will be embarrassed by making a diagnosis of pneumonia where none exists. It is best to hold your opinion in reserve until your physical signs are frank. In treating lobar pneumonia, absolute confinement to bed is essential, for as a rule we are deal-

ing with children who have assumed the upright position in contradistinction to those of broncho-or hypostatic-pneumonia. Allow your patient to sit up as little as possible, avoiding all unnnecessary movements; let him alone, undisturbed, except for feeding and the necessary hygienic care. It is a self-limited disease. Rigid hygienic care of mouth and skin is very necessary. Do not upset the stomach with drugs just because you have a case of pneumonia. We usually have anorexia, and where this exists the diet may consist entirely of fluids, as water, fruit juices, sugar, milk diluted with weak tea or coffee, thin broths with well-cooked cereals. Just because you have pneumonia you do not have to give digitalis. Wait for cardiac needs before resorting to digitalis or other cardiac stimulants.

The other lines of treatment are about the same as for bronchopneumonia; mild cases, no drugs; moderately severe cases, symptomatic and maybe small doses of digitalis; severe cases to be treated vigorously with heart stimulants, digitalis, caffein, adrenalin, and alcohol; small doses of quinin and guaiacol may serve you well at times. Type I and Type IV serum may be given with beneficial results if given in first forty-eight hours of disease; later, we are unable to see where it is of any benefit. Last, but most important, especially in anemic children, blood transfusions not only improve your anemia, but in some cases cures the infection in a manner similar to a crisis. This, of course, is not urged except in very anemic infants and young children.

We are not ready to accept the wonderful results reported for intravenous injections of mercurochrome, chicken blood, or diathermia.

THE TREATMENT OF PRIMARY AND SECONDARY PNEUMONIA.*

W. L. LITTLE, M. D.,

WESSON, MISS.

It should be our aim as physicians to prevent as well as cure all ills.

We are hoping that vaccines as prophylaxis, and serums as specific, will do for pneumonia what has been accomplished in eradicating small-pox, diphtheria, and typhoid fever.

Some are advocating the use of vaccines, and reporting good results, producing statistics that are very convincing, but until we know more of the susceptibility of each individual and can better judge the reaction, and also know the duration of the immunity, its general use will be condemned. Some excellent reports have been made on the use of anti-pneumococcic serum, type I, as to its specific action.

About two-thirds of all cases typed are I and II, and type I somewhat more frequent than the latter. Statistics also show that type I serum is of very little value in treating type II pneumonia, and none in three and four.

Can we have a method of treatment which is specific for all pneumonia, one that will cut short the length of our patient's sickness, and will give him a better chance of living?

In pneumonia we are confronted with this fact, that we are dealing with a different type from one year to another, and from one section or locality to the other. The rate of mortality is also changing with or without the type. This is not only true with primary, but also secondary pneumonia. We have witnessed this past season an alarming death rate in influenzal pneumonia in the aged, whereas a few years

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ago the greater number of deaths occurred in young adults. In other years we find more cases in children. If the general practitioner had an easier way of diagnosing these different types of pneumonia, we would have a greater number treated with anti-pneumococcic serum, antibody solution, or pneumonia antigen.

Many glowing reports and statistics galore, proving the advocates' line of treatment has lowered the death rate, but the deaths recorded continue too great for modern medicine. We need statistical and laboratory data that is practical and producing more uniform results.

Having no specific or routine treatment for either primary or secondary pneumonia, our efforts are palliative. We should place our patient in a well ventilated room with a uniform temperature, and under the care of an efficient nurse. Many drugs and methods of management are used, but I shall confine my paper to the most important.

In most cases an initial dose of calomel followed by a saline is best, after this magnesia and castor oil as needed.

Counter-irritation with a mustard jacket, or some form of mustard paste, this to be repeated every three hours, care being used to cause no blister or unnecessary disturbance. This counter-irritation will often times relieve a disturbing pain.

Diathermy is used by some, the sedative method in which the current is turned on slowly and run up to 2000 milliamperes. The technic requires training and is accessible to a limited number.

Mercurochrome is being given with good results, administered intravenously to adults and intraperitoneally to children. The difficulties some times encountered in its administration, and the danger of mercurial poisoning prevents its general use.

High temperature should be treated with ice pack and acetyl salicylic acid, the latter given cautiously and in the first stages.

Codeine will relieve pain and cough better than anything I have ever used.

Diet is an important factor in combating the effects of pneumonia; this should be nutritious and easily digested. I find nothing better than buttermilk, fruit juices, cereals, cooked fruits, and toasted bread. I instruct that patient be fed every three hours when practical.

If we are to carry our fight to a successful conclusion, stimulating and supportative treatment must begin early. I have used all of the following drugs: strychnin, digitalis, atropin, camphor, and caffein.

I prefer strychnin, which is always safe and dependable. Digitalis has and will save the life of many; begin early for it will do no good after the heart has failed, which is usually due to acute dilatation.

I consider these four points of most value: elimination with water and magnesia; rest by giving sufficient doses of codin; strychnin and digitalis as stimulants; with judicious feedings.

DANGER SIGNALS.

Dyspnea, a sudden drop in blood pressure, pulse rate of 130 or above, cyanosis and acidosis.

DON'TS.

Don't give quinin unless you have positive malaria, drastic purgatives, wet applications or poultices, too much company, over-heated and poorly-ventilated rooms, and never subject influenzal pneumonia to air currents.

DISCUSSION OF PAPERS OF DR. RILEY AND DR. LITTLE.

Dr. T. D. Bourdeaux (Meridian): Dr. Riley has written such a good paper that he hasn't left very much room for discussion. I had the privilege of reading his paper before it was read before you and I am so heartily in accord with almost everything that he has said that I won't be able to get up much argument with him. I think the most I can do is to try to emphasize one or two points in this paper.

I might say the theme of this paper was confined to the treatment of children and infants in the home and not in a well-appointed hospital.

Inasmuch as pneumonia, as we all know, is a self-limited disease and we haven't any specific treatment yet, we have to confine ourselves to treating the patient and letting the disease alone largely. The question arises: "What can we do for these little fellows, assuming that we have diagnosed it correctly, with pneumonia?"

Of course, the placement of the patient is important. We all like to have a patient in a well-ventilated, warm room, with plenty of moist air and a good nurse. When we have done that we have gone a long way toward giving the child the best opportunity it will have to get well. I think most cases are over-treated rather than under-treated. I haven't very much respect for drugs in the treatment of pneumonia other than simple liniments and possibly an opiate where the child is coughing too much or is too restless. Of course, nursing and controlling the temperature are important, but we usually do that with hydrotherapy and not many drugs.

When it comes to the question of stimulation, I am somewhat at sea about these little fellows, because I seriously doubt if any cardiac stimulant has any effect on a toxic heart from pneumonia.

We give digitalis, caffein, and we give atropin and alcohol, and sometimes strophanthus, and then in desperation we give adrenalin. I think if the child is well nursed and well nourished, the chief function of a doctor in treating pneumonia is to look out for complications and to see that a lot of things are not done that are usually done in treating these patients.

Dr. N. C. Womack (Jackson): This paper is interesting and important from the standpoint that it is a universal disease. It is something that we are dealing with all the time in our practice. We haven't found any definite method of terminating the disease or of treating it any manner that will terminate the disease earlier than is usual, as we have in some other conditions.

The doctor has referred to pneumonia in the home. That is where most of them take place. A few of them go to the hospital. A great many of us feel that hospital treatment is an ideal treatment for pneumonia and almost everything else. Therefore, I would say that the managment of pneumonia in the home in infants and children should as near simulate hospital treatment as is possible. That would mean, first, that when it comes to a question of making a diagnosis that, as nearly as possible, complete laboratory work should be done. You would be surprised at the number who are treating more or these cases in the home and who are doing the laboratory work. They are making their diagnoses from their laboratory appliances, and they are making differential diagnoses which are very important.

The diagnosis is the first thing, and we ordinarily feel that the diagnosis of pneumonia is a simple matter. It is in simple pneumonia, an abrupt, frank, open case. We are seeing cases all the time in which we have to wait several days before we can cinch our diagnosis. It has to be differentiated from several conditions. The atypical type: I would mention appendicitis as a common one, occasionally a certain allergic condition of the lung which will stimulate pneumonia very much, some forms of pleurisy, primary pleurisy, some forms of meningitis (they are rare), particularly the influenza type; but the differential diagnosis is necessary.

The treatment as we have it has been well outlined. There is no treatment, except to support the little patient with the proper nourishment. I do not feed my patients cereals, bread, and things such as that. I may be wrong. I was one of those who would never feed a typhoid case a lot of food. I was afraid of it. I give these pneumonia cases fluids, and plenty of them.

In that connection, the maintenance of the alkali acid base ratio is one of the most important things, because these little fellows with high temperatures are burning up enormous quantities of fluid. Oftentimes they have a relative acidosis and are losing everything they take by mouth. They should have enormous quantities of fluid by rectum, by the mouth if they will take it. Do not fail to use (and I am talking about it in the home now) hypodermoclysis, glucose put up in 50% solution, 1 tube of 450 C.C. normal salt, using tap water and boiling it in the kettle, using a normal salt and giving it with a needle from any kind of a can, just so it is a clean can, and shoot it under the skin. We usually give 10 c.c.'s to the pound, every six, eight, or twelve hours as necessary.

There is another thing you run into in the home. If the child needs support, don't hesitate to take a little sodium citrate solution and draw 25 or 30 c.c.'s of the mother's blood, without typing it, pull it out of the vein, get somebody to hold the arm, clean it up, and turn it upside down two or three times, and stick it in the flank or in the hip of the child. This can be done once a day and it will tide the baby over for twenty-four hours if you don't give it another thing, but don't hold up on the other things.

Watch the ear. Ninety per cent of these cases have ear trouble. They cry, they are restless, they can't sleep. Everybody has to have sleep. A well man has to have sleep, especially a sick baby with pneumonia. Look at his ear. Ten per cent of them will have to be punctured. They will never say a word. You look in there and see a red ear, test it on the otoscope. That is a

mighty good thing to have in the grip. You can't make a mistake.

We mave no specific treatment, but they get well. Keep them from complications by careful attention.

Dr. D. W. Jones (Jackson): I want to say a word in commenting on Dr. Little's question: Have we or can we hope to have a specific serum in the treatment of pneumonias; that is, all pneumonias?

Much work has been done along the line of study of pneumococci in the Rockefeller Institute and biological laboratories with a view to developing a specific serum. We know that in any acute infectious diseases the question of whether the patient survives depends upon the action of leukocytes in phogocytosis upon invading bacteria. We know, furthermore, that the action of the leukocytes in this respect is helped by the development of the immune bodies of the patient. In pneumonia, it takes about seven or eight days of ordinary pneumococcus infection, especially in an adult, for this process of immunity and phagocytosis to take place, what we call the crisis.

If we could develop a specific antibody, an artificial serum which, when injected into the blood of a patient would so neutralize the specific toxins of the germ life and so opsonize or sensitize the germ life that the phagocytosis of the leukocytes could be facilitated, undoubtedly that is the theory along which we could save a great deal of time in completing the cycle of pneumonia. That is the future treatment of many cases of pneumococcic infection.

Dr. Little spoke of the types. If I had time I should like to say more about that, and that is the reason Dr. Arrington asked me to speak first. I simply want to say that the Rockefeller Institute and the Biological Laboratories are firmly of the opinion that pretty shortly they will develop a serum for No. 1 or No. 2 that will be very effective. As Dr. Little says, they make extravagant claims for No. 1 already. They say it has reduced the mortality from an ordinary average of twenty per cent down to eight per cent. Whether or not that has been thoroughly established, I do not know, but that is the claim.

If that can be developed, then we certainly will save a lot of lives and a lot of time.

The objection to that general practice, as Dr. Little says, is in the practical execution of the plan. In the first place, we have no facilities at present in general practice for typing pneumonia. Dr. Little spoke of the types 1, 2, 3, and 4. You know that about thirty-five per cent of the cases fall in type No. 1, and possibly thirty-two or thirty-three per cent fall in type No. 2, which we have hopes of getting a perfect serum for. So, if we would have about two-thirds of it, we could take a shot at it when we get a live serum for No. 1 and No. 2. For the present, the objection is knowing the type.

Dr. Little spoke of the different ages and different years with regard to the mortality—a high mortality in children, and in one epidemic a high mortality in the older people. Type No. 1 is a common infection in children. When that is prevailing, the mortality of course and the morbidity are greater in children. Type No. 3 occurs in the older people, and when the prevailing death rate is high in older people, the chances are we have a prevailing type No. 3. If we could get that readily typed and if we had a serum which would neutralize the antitoxins of that particular type, of course we would have the thing going our way. For the present, the difficulty is the typing. It isn't so very difficult, and I believe the day will soon come when we can have certainly type No. 1 and type No. 2 worked out pretty readily in a good many of the smaller laboratories. It is fairly easy and can be done within six to twelve hours. That gives ample time to get in our work early as Dr. Riley said we have to do.

For the present we would have to merely guess that if sixty-six and two-thirds per cent fall within type No. 1 and No. 2 and thirty-five per cent in No. 1, and if we have a proven serum with type No. 1 and it is in people under twenty, we have a pretty fair guess that we are dealing with type No. 1.

Then there are some other symptomatic points to help us out. What is the objection to using serum for type No. 1? There are several objections. The bulkiness of it makes it impractical to use it subcutaneously because this shows the size of the tube, a good large volume, Squibbs, and the others are about the same size. If we have to use five or six doses in an ordinary case about every six or eight hours apart for two days, it is quite impractical to inject that much into a child, for instance. Six doses of that intravenously is impractical in a good many cases, too, especially in young children. That is one of the difficulties. In time, I think, the serum will be refined and reduced in volume so that we can use it intramuscularly and intraveonusly to better advantage.

The second objection is the price. I hold in my hand 50 c.c., an ordinary dose, price five dollars. If you have to give six doses at five dollars, the doctor will not have much left in a great many cases.

My time is up but I want to close with this remark: I firmly believe that in a very few years

we will have facilities for typing No. 1 and No. 2 fairly accessible to the general practitioner, and that we will have a refined and reduced form of serum that will be practical in use.

Dr. O. N. Arrington (Brookhaven): I enjoyed both of these papers very much and jotted down a few points that I wish to emphasize. Pneumonia is a self-limited disease. We have no specific cure. It is interesting to study some of the old writings, for instance the writing of Hippocrates who lived about the beginning of the Christian era, and to note how little difference or improvement in treatment we have had since that time. The treatment continuously has been more or less diet, laxatives, counter-irritation, heat.

I do not believe I care to reiterate comments on laxatives. I do want to emphasize, though, the use of laxatives instead of purgatives, as that is a kinder treatment, and we want to conserve the energies of our patients. With regard to stimulants, I believe I will disagree with the doctor in a small measure, and that is this: Let your patient alone as long as he is living and doing well. Reserve your stimulants until you have a tired, exhausted heart.

Counter-irritation, I believe, should be begun early; late, perhaps it does no good.

The application of poultices is old and timely and certainly does no harm. I believe that a flaxseed meal poultices following counter-irritation early is thoroughly in order. I have practiced that treatment. Let us follow very thoroughly simplicity, treating out patients as has been reiterated, by laxatives, diet of a safe character, stimulants late, and treat the patient and not the disease.

Dr. Joe E. Green (Richton): We will probably not have any subject discussed that interests more of us here than pneumonia. I thoroughly enjoyed both of these papers. I want to again re-emphasize what Dr. Riley said about quietness. About fifteen years ago I happened to have a pain in my abdomen and I felt that it was appendicitis and called in Joe Armstrong. He in turn called in Billie Gittens and he in turn called in George Brown. They said it was appendicitis and proceeded to operate on me on the kitchen table, and why I am here today God alone knows. But I am living, thank the Lord.

I learned then that when a man is sick, the thing he needs is quiet, and I finally got quietness, too.

The trouble is that with the children, they can't talk, but it is all right for all the sisters to come in and discuss all the rest of them who are not there. A child will be resting and then three or four will get around and start shooting "hot air" and that temperature will go up in thirty minutes. If you don't believe it, try it.

Keep that patient quiet, and if it comes to a very important part, be nice about it. And if you can't do anything else, just say, "Damn it, stay out." The baby is entitled to that much.

There is another thing in bronchopnuemonias. We all think about fresh air. If we don't watch ourselves in the average home, we will come back and find that child lying in a draft of cold air, which is a fine route to the cemetery. We want warm air and should so impress it on those people where the baby is being treated in the home.

I should like to have a racket raised, so I am going to raise one here in regard to vaccine. I know that most of you don't believe in vaccine, and I think I know the reason.

About three years ago I was in Saluda, North Carolina. By the way, I want to tell you small country doctors, and it won't hurt you big town doctors, if you want to hear more real baby discussions of the scientific kind in two weeks than you would get in any post-graduate course in two months, go to Saluda. Strong is a big fellow down here, but he is just an average fellow up there.

I asked Dr. Mallaird of the University of Georgia what he thought of vaccines. He said, "I don't think they are any good."

I said, "Let me ask you another question. Have you ever tried vaccine?"

He hesitated and then said, "I think I used it on one case."

For fifteen years I have been using every mixed vaccine. I use Sherman in my cold cases for common cold, and not a single case of pneumonia have I ever treated in a baby to whom I have given the cold vaccine.

I heard a pediatrician from Miami in the discussion. He said he had been at it longer than that and he told the mothers if the children were given the cold vaccine he would treat them free of charge if they had pneumonia. He never had a case of pneumonia develop but one. I have never killed one yet.

With regard to differential diagnosis, you had better watch your step, boy. Appendicitis and lobar pneumonia will throw you off guard. You may have a pain in the stomach and it will be pneumonia, or you may have a pain in the lung and it may be appendicitis. You had better be careful in going over the lung and abdomen, or you will open up and have a pneumonia case, and probably fail to open up and have an appendicitis case.

I believe in external application. I believe the same as Dr. Lewis (he is still living, thank the Lord)—keep the baby's chest about like a well-spanked baby. That is what I try to do and that is the direction I give. You can do that by a light application of one to six turpentine. If you want to use some oil, all right, or you can use just a mustard solution with a cloth wrung out of it, and if that chest doesn't stay red for three hours, I miss my guess, and if it stays red a half a day, all right.

These papers are very timely. Don't forget the last thing. All these points have been brought out, but don't starve the baby to death. During those seven, nine, or twelve days, try to get in food enough to hold up the caloric needs, because God knows if he ever needed it he needs it then. Make them eat and check up on it. You will find that half these children die from starvation and acidosis instead of pneumonia.

Dr. R. W. Rowland (Oxford): I didn't intend to discuss this paper, but since digitalis was mentioned by both essayists, I am constrained to do so. There is a growing tendency on the part of a great many physicians to digitalize their pneumonia patients during the first three days of the attack.

We have been making some research studies in digitalis in the Pharmacology Department of the University, and I have found some interesting things. I have assumed that digitalis has a fuel value. Bear that in mind. The principal factor in pneumonia fatalities is heart failure. They all die with heart failure—ten per cent of them with auricular fibrillation.

The main factor involved in that feature is oxygen starvation with a resultant perverted metabolism of glucose by the heart muscle as well as other muscles. Digitalis is a glucosid—like a glucose. I assumed it was capable of being burned and that it had a fuel value.

We ran a gram of sugar through the calorimeter and it raised a kilogram of water through four degrees. We had some fresh powder from digitalis leaves. We ran a gram of freshly powdered digitalis leaves through the calorimeter and it yielded nearly twice the fuel value of the sugar.

Since glucose is the source of muscular energy, both in the heart muscle and in the striated muscle, the heart muscle using about five milligrams of glucose for each gram of weight every hour, the glucosids are also carbohydrates, but in a combined form, not as readily oxidized but more slowly oxidized than sugar, having a selective affinitive for the heart muscle, stored there and metabolized there, increasing the energy of the heart muscle. That statement is denied.

Pharmacologists tell us that digitalis does not add to the energy of the heart muscle. If it does not, I want to know how anybody can explain the increase in contractility and tonicity of the heart muscle. If it is not the result of an increased energy, what is it the result of? If you are not saying that the heart is energized when you say the contractility is increased, what are you saying? What do you mean? Mind you, that was the powder of digitalis leaves.

We are now running through the calorimeter the active principles. We are going to see what we can get out of that. We are now running through the calorimeter digitoxin. We are making a half dozen or a dozen different trials. We are going to try to find what active fuel principles it has. I am strongly impressed with the results we have already obtained.

I am just as sure as I am that I am standing on my feet that the effect you get from the administration of digitalis is through its power to energize the heart muscle, because it is burned in the heart muscle. It is metabolized there, just as glucose is metabolized there. It re-enforces the glucose normally consumed by the heart.

In pneumonia there is less than normal consumed because of the oxygen starvation. You get the weak heart and finally failure.

I don't like to call digitalis a food. In one sense it is a food; it depends altogether on what you mean by a food. I wouldn't call it a food. Alcohol is a food. It burns and yields energy, but is quickly destroyed. Digitalis being relatively insoluble, is stored in the heart muscle and is slowly oxidized. That is why you get the continuous effect of it. There isn't any other drug in the book like it. There isn't any other drug that will compare anywhere with digitalis in the capacity of the heart muscle to store it.

I want to agree with the essayist in the treatment. I didn't intend to say this, but I did so simply because digitalis was brought up, and I thought it would be well to mention it.

We are studying it pretty closely and I am in hopes that within the next few months I will be able to give you our results. I believe we are on the right track.

Dr. F. G. Riley (closing): I don't believe I have another word to say. I thank these men for their discussion of my paper. I appreciate all that has been said, and especially Dr. Rowland's talk in regard to digitalis.

Dr. W. L. Little (closing): My closing will be just about as brief as my paper. From the investigations I have made in getting up this paper, I am convinced that we are going to have a serum

pretty soon for type No. 1 that will be all right, and perhaps one for No. 2.

To go back a little, just forty-one years ago, maybe a few days before or a few days later, Dr. Jones of New Orleans vaccinated me with a scab for smallpox that he took from a child. He said it was all right. I don't know whether or not it was.

At that time we knew nothing about typhoid vaccine. I had never heard of diphtheria antitoxin, and all these things came along later. From the advance information I have been able to obtain, I am sure we are going to get it right away. I am indebted to Cecil's text on the study in the Rockefeller Institute and to Dr. Janis of New Orleans for these types. Their studies have been very convincing.

OXYPERITONEUM.*

H. B. McCORKLE, M. D.,

COLORADO SPRINGS, COL.

Oxyperitoneum is the injection of oxygen into the peritoneal cavity for the treatment of intestinal tuberculosis. It has been reported in Europe for many years and in America more recently.

Dr. A. L. Garbat in the American Medical Journey for February 27, 1926, states that the first article of oxyperitoneum was published in Vienna in 1893 by Mosetig-Moorhof, who called attention to this new treatment for tuberculous peritonitis, giving a case history of a child four years old who was cured by injections of air into the intraperitoneal space. Several months later in Berlin, Nolen[2] recommended the same form of therapy as a new method, citing three cases treated to good advantage. Between 1893 and 1921, six other German physicians treated tuberculous peritonitis with air injections and reported excellent results. The names of these physicians with brief case histories are contained in Dr. Garbat's paper. In Paris, in 1921, six cases of tuberculous peritonitis were treated with oxyperitoneum by Weil and Loiseleur,[3] resulting in a complete cure in three cases.

These German and French physicians used air and in a few instances nitrogen for giving pneumoperitoneum. In 1920, Rost,[4] an Englishman, reported several cases of tuberculosis treated by oxygen inflations with markedly good results. He not only used injections of oxygen for tuberculous peritonitis but also for tuberculous joints and psoas abscess. Arthur Stein[5] made the first report in the United States on oxygen inflations of the peritoneal cavity for tuberculous exudative peritonitis. He first recorded the beneficial results to be obtained by oxyperitoneum when patients who had been inflated with oxygen for roentgen examination of the abdominal organs showed marked improvement following the inflations. However, Stein was preceded by Godwin,[6] who in 1913 after using oxygen injections following coeliotomy in ascitic tuberculous peritonitis, noted remarkable improvement in the patients so treated and marveled that the procedure was not in universal use. In the same year, Bainbridge[7] recommended oxyperitoneum for its effect on certain types of tuberculous peritonitis.

In 1924, Walter L. Mattick[8] gave his conclusions about oxyperitoneum in his report, "Intraperitoneal Oxygen Inflations in the Treatment of Ascitic Tuberculous Peritonitis," with a case history which he states is the second report on such a procedure. Oscar Monroe Gilbert,[9] of Boulder, Colorado, in 1924 and 1926 reports four cases treated with excellent improvement. However, it was astonishing to me to learn what a small percentage of physicians employ this treatment to relieve intestinal tuberculosis, as I consider it one of the simplest, safest forms of therapy. My opinion is, that numerous physicians have helped many cases of which no report has been made, and when I began giving oxyperitoneum five years ago, I did not know its use was limited to a few physicians and sanatoriums.

*Read before the Section on Hygiene and Public Health, at the Sixty-second Annual Session of the Mississippi State Medical Association, Gulfport, May 15, 1929.

When practicable, laparotomy has always been considered the ideal treatment for tuberculous peritonitis, and Dr. Carroll Smith[10] makes the assertion that 75 per cent of the ascitic forms of tuberculous peritonitis are cured by laparotomy but what form of treatment should we use when ascites recurs, when none is present and when a patient does not retain the immediate improvement that usually follows laparotomy?

Several years ago, Dr. Shivers and I operated upon a doctor for tuberculous peritonitis. The operation was resorted to as a desperate measure, for the man was apparently going to die. After operation, he convalesced rapidly and made an improvement sufficient to give him several years work in the Woodman Sanatorium Laboratory and laboratories in Colorado Springs. For some unknown reason this particular operation impressed me with the amount of benefit given to patients suffering with tuberculous peritonitis by simply opening the abdomen and allowing the air to enter, so when I had an opportunity to read the few articles, reports and case histories available on oxyperitoneum, it appealed to me as logical, that if air entering the intraperitoneal cavity through surgery was so helpful, oxygen without operation should be equally valuable and could be repeated at will.

My first oxyperitoneum was given to a young lady with a well advanced case of pulmonary tuberculosis, who was operated on by Dr. McKinnie seven years previously for chronic appendicitis. We judged her appendix would be tuberculous and when the abdomen was opened we found not only a tuberculous appendix but a tuberculous condition extending on the cecum. The appendix and all the infected area possible was removed. After operation the patient made good improvement over a period of two years, when she experienced a return of all the symptoms she had previous to operation and lost ground rapidly. Further surgery did not seem indicated, heliotherapy and ordinary hygienic care afforded no relief. After considerable hesitation, I injected 500 c.c. of oxygen into the intraperitoneal space. In spite of my previous conclusions, I was agreeably surprised when she showed immediate improvement. She reported her appetite increased at the next meal. She gained weight, the abdominal symptoms subsided and after fourteen injections of oxygen, she has been at home in Indiana for two years, in better health than she has had for many years.

TECHNIC.

The technic of oxyperitoneum is identical with the one used for artificial pneumothorax except that it is done over the abdomen so as to get into the peritoneal cavity. The equipment necessary is the same as that for artificial pneumothorax but the one bottle of the pneumothorax machine is filled with oxygen instead of air.

There has been extensive discussion about the site of puncture. Dr. R. L. Laney,[11] of the Lake Julia Sanatorium, Puposky, Minnesota, makes his injection in the region of McBurney's point. Dr. D. E. Holmdahl[12] reports his site in the anterior axillary line at about the eighth intercostal space on the left side, but I make my puncture on the left side opposite McBurney's point, just below and to the left of the umbilicus. I ascertain just before beginning treatment that the bladder is empty. I use a small hypodermic needle to inject a 0.5 per cent novocain solution, having first painted the point of puncture with iodine. The needle used is a very long one in order to be positive that the solution is carried into the intraperitoneal space. The patients seldom complain of discomfort during this procedure.

After anesthetizing, the tube connection can either be attached to this needle or replaced with a regular artificial pneumothorax needle and the tube connection made. As the needle enters the abdominal cavity the manometer at once registers a negative pressure. After slight inflation

with oxygen, if the needle is in a free pocket of oxygen, the manometer will show a slight plus pressure. I have injected from 3000 to 1000 c.c. of oxlgen. The patients frequently complain of pain in the shoulders, more often in the right than in the left, but this is of a very temporary character and can be relieved by lowering the shoulders and elevating the extremities, as it is apparently of a diaphragmatic character. At times the amount of pressure necessary to force the needle through the abdominal wall causes apprehension in nervous patients. This is another reason why I use an extra long needle to which the tube may be connected when necessary without replacing with an artificial pneumothorax needle. The amount of oxygen given depends somewhat on the anatomical and psychological condition of the patient but I like to give enough oxygen to slightly distend the abdomen.

I. C. Rubin, of New York, in 1920, dispensed with abdominal puncture in giving oxyperitoneum to his female patients by inserting a steel catheter into the uterus, allowing the oxygen to flow through the tubes into the peritoneal cavity. My objection to this technic has been that there is a possible danger of carrying bacteria from the uterus and tubes into the peritoneum, which would cause a general peritonitis. I have given over a hundred inflations with no unfavorable results, no general peritonitis or other inflammatory conditions.

TYPES OF TUBERCULOUS PERITONITIS TREATED.

Hoynihan describes three classes of tuberculous peritonitis: ascitic, fibrous and suppurative. Case histories from foreign literature with few exceptions deal with the ascitic form when treated by oxyperitoneum. Mattick's[8] report as well as the four cases reported by Gilbert[9] were of the same type and a paracentesis was done in each case before the oxyperitoneum. These case reports also show that oxyperitoneum was given about three times to each case but I have repeated my treatments as many as fourteen times and usually give it until I am satisfied with the advancement made in each individual case.

I have treated nine cases of intestinal tuberculosis with oxyperitoneum during the past five years, giving about 110 inflations. Four of these cases were of the ulcerative type on which a laparotomy has been done from one to three years previous to oxyperitoneum. Diagnosis was established by operation and in each case a local focus of infection removed. Two cases were ascitic tuberculous peritonitis and four I diagnosed as ulcerative but they could have been fibrous. Eight of these patients had pulmonary tuberculosis. The ninth patient so far as could be established did not have pulmonary tuberculosis, her intestinal tuberculosis having been discovered on operation for chronic appendicitis. In diagnosing four of my cases as ulcerative, with a possibility of their being fibrous instead, I was dealing with symptoms, which is often unfortunately the case in diagnosing intestinal tuberculosis. Some authorities claim good results in diagnosing tuberculous peritonitis by roentgen-ray, but this has not been my experience. Four of my cases were, as previously stated, diagnosed during operation, but as all nine patients received benefit from oxyperitoneum, it leads me to the conclusion there was intestinal tuberculosis present in all of them.

I cannot understand how the use of oxygen would greatly benefit tuberculous enteritis but the symptoms are bettter for a while. Dr. Gilbert[9] gives a report of two cases of tuberculous enterocolitis in which there was extensive involvement of the lower ileum and colon, so that on opening the abdomen, resection was impossible and enterocolostomy impracticable. A tuberculous appendix was removed in each case. In one of these patients air was introduced as the closing of the incision was completed but the patient died in four days although more comfortable than such cases usually are. The second patient lived three weeks and had three additional inflations at five

day periods. He begged for oxygen as he was much more comfortable when it was present in his abdomen. Dr. Gilbert adds that while these patients are usually more comfortable after operation even without oxygen, he believes in these two cases that oxygen inflation added to their comfort. He also states that, although air is absorbed from the peritoneal cavity, we have nothing to indicate that air so absorbed would reach the intestinal mucosa any more readily than it would when absorbed by the alveoli of the lungs.

RESULTS.

Of my nine cases four are apparently cured. One patient is dead, three are much improved but still taking oxyperitoneum, and one case gained over a period of two years but is now seriously ill, due, I believe, to the fact that he did not come back for treatment as directed.

Three of the four cases I consider cured, were those which had been operated on and a local focus of infection removed. They progressed nicely for a while after operation and then experienced a recurrence of symptoms present before operation. This point I believe is worthy of consideration; the cases where the foci were removed, improved most rapidly, although I believe that all of these cases will ultimately reach the arrested stage.

Without exception my patients after oxyperitoneum have been relieved of their abdominal symptoms shortly after treatment, to such an extent, that they began asking for more oxygen as soon as it was apparent that the oxygen had been absorbed to an appreciable degree. They reported an immediate increase of appetite, from the first meal on.

The absorption of fluid from the abdomen can also be determined after a short interval. The doughy appearance and character of the abdomen disappears. Diarrhea is lessened and eventually stopped.

In my female patients, who previous to treatment by oxyperitoneum have complained of leucorrheal discharge and pain and discomfort during the menstrual period, these conditions were also apparently cured. Menses became regular, pain was eliminated and the discharge was less. This fact calls to my mind something Mayo has said to the effect that tuberculous peritonitis in women most commonly has its local focus of infection in the Fallopian tubes.

The most important effect of oxyperitoneum is the speedy relief afforded to the patient by the rapid disappearance of all symptoms, as these patients invariably report improvement in the twenty-four hours following the first oxyperitoneum.

The symptoms removed are usually the discomfort at the menstrual period, relief of pain, nausea and vomiting, loss of appetite and diarrhea. Absorption of fluid is also accomplished.

There are several theories advanced as to how good results are obtained in intestinal tuberculosis by using oxyperitoneum. Dr. Laney[11] gives his opinion as being, that favorable results are derived from both increased intra-abdominal pressure and from a direct chemical action of the oxygen.

Without doubt there must exist a capillary stasis where intestinal tuberculosis is present. If the oxygen is taken up by the blood stream after oxyperitoneum it is bound to act as a stimulant and exhilerant, which probably accounts for the early increase in appetite due to the beneficial effect of the oxygen on the stasis.

Murphy at one time saw a peritoneum four days after operation for tuberculous peritonitis. It was intensely congested, vascularity was greatly augmented, gloss was almost gone and it contained seropurulent fluid. Active proliferation seemed to be encapsulating the tuberculous foci. This is probably the way intestinal tuberculosis is cured, that is, by encapsulation making

the process quiescent. In a similar manner oxygen acting as a foreign body in the abdomen could cause a distinct reaction of the tissues to the infection and the oxygen could have some specific action on the bacilli to destroy them.

Dr. Gilbert[9] suggests that there is evidence to support the view that simple trauma (such as would be produced if oxygen acts as a foreign body in the peritoneal cavity) may favor the healing of sluggish tuberculous processes. We all know from experience of patients who have begun to improve after an unsuccessful attempt to give artificial pneumothorax and this would indicate that we may have started some process by means of the simple trauma caused by the attempted collapse.

The foregoing statements are the theories set forward to explain the favorable results which are undoubtedly secured by using oxyperitoneum for the treatment of intestinal tuberculosis.

COMMENTS.

In one of my patients with ascites, I did not know there was fluid present until after 600 c.c. of oxygen had been given when the fluid could be made to splash distinctly by manipulation of the abdomen. This fluid was gradually absorbed and disappeared in about three weeks. Dourre[13] reports air found in an abdomen three weeks after injections but oxygen is apparently more quickly absorbed, although I have found it present ten days after oxyperitoneum.

My patient who died was a well advanced case of pulmonary tuberculosis and I diagnosed the intestinal complication as tuberculous enteritis with ascites. At her first oxyperitoneum I injected 800 c.c. of oxygen and when the treatment was finished the fluid could easily be heard by ausculation or on movement of the body. I gave her two additional inflations, at intervals of three months each and the fluid was absorbed. She obtained a wonderful relief of symptoms but I believe the enteritis was a contributing cause of death.

I was anxious to secure a post-mortem on her for a surgeon with whom I discussed oxyperitoneum contended there was danger of causing adhesions at the point where the needle entered the peritoneum. The report of the autopsy by Dr. J. R. Haney was as follows:

"On account of objections of family to procedure, this autopsy was limited to the abdomen of a female, aged 24 years. The abdomen was opened and peritoneum inspected. It had a glossy, moist appearance and a normal color. There were no adhesions to the parietal or visceral peritoneum. No adhesions to the tubes are appendix. Female organs appeared normal. The small intestine showed frequent areas where ulceration has destroyed the mucosa, submucosa and muscular coats. The wall of the large intestine was very thin; no tubercles on the peritoneum; some enlargement of the mesenteric and retroperitoneal lymph glands. Apparently no involvement of other abdominal viscera. No fluid found in abdomen."

The autopsy proved that the use of oxygen into the intraperitoneal space did not cause adhesions where the neeedle entered the peritoneum. The intestines were absolutely as free as if no oxygen had been injected or as if no fluid had existed before oxyperitoneum and there was no fluid in the abdomen at the time of death, although, as noted above, considerable ascites was present before treatment. Her last oxygen peritoneum was given May 3, 1928, and death occurred June 4.

However, previous to this post-mortem, I could not believe there were adhesions because after the first injection of oxygen I experienced no difficulty in giving subsequent treatment, and this would not have been the case if oxyperitoneum caused adhesions. Rost[4] found that the injection of oxygen would separate adherent surfaces and tended to break up adhesions. He also

believed the oxygen inflations prevented the outpouring of the exudate, which would help to account for the gradual absorption of fluid after oxyperitoneum.

SUMMARY.

1. Oxyperitoneum was first used for treating tuberculous peritonitis in Europe in 1893. In 1921, Arthur Stein made a report in the United States of a case of tuberculous peritonitis cured by using this therapy.

2. A comparison of oxyperitoneum with laparotomy shows that, while laparatomy is the ideal treatment in some cases of tuberculous peritonitis, it is not always practicable, especially when the symptoms recur after operation. Three of my cases apparently cured are ones where the local focus of infection had been removed by operation and the patients later had a recurrence of all symptoms.

3. The technic of oxyperitoneum is practically the same as the one used in giving artificial pneumothorax except oxygen is used instead of air and the puncture is made over the abdomen instead of in the pleura.

4. All three types of tuberculous peritonitis receive benefit from oxyperitoneum. I do not understand how tuberculous enteritis receives benefit.

5. The results obtained are a prompt and usually permanent relief of all symptoms, such as nausea, vomiting, menstrual pain when associated with the peritonitis, loss of appetite and diarrhea. Fluid when present is absorbed.

6. The theories advanced as to how results are obtained are: (1) From increased intra-abdominal pressure; (2) from direct chemical action of the oxygen; (3) relief of capillary stasis; (4) oxygen acting as a foreign body in the peritoneal cavity could produce a simple trauma favorable to the healing of sluggish tuberculosis processes by destructive action on the bacillus.

7. Autopsy revealed no fluid in abdomen of a woman who had had ascitic tuberculous peritonitis treated by oxyperitoneum. There were no adhesions. Some enlargement of the lymph glands of the large intestine was present as well as areas of destruction by ulceration on the small intestine.

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DISCUSSION.

Dr. H. R. Shands (Jackson): First, I want to thank Dr. McCorkle for coming down here to present this subject to us. While tuberculous peritonitis is not such a common disease, I think it is one that certainly needs the most scientific and active treatment.

When I studied surgery twenty-five years ago, the statement was made that simply opening the abdomen and closing it would cure fifty per cent of the cases of tuberculous peritonitis. I couldn't understand that then and I can't understand it now. I know from experience that in some seven or eight cases this is an understatement rather than an overstatement of the fact.

During the past twenty-five years I have operated on eight cases of tuberculous peritonitis, and all but one recovered, at least temporarily, from the disease; that is, they were relieved of symptoms.

I think one advantage possibly in connection with the use of oxyperitoneum with a needle rather than a laparotomy is one of the very essential things in the treatment of any form of tubercu-

losis—the continued hygienic treatment—whether in a hospital or under the care of a physician who has given this treatment from time to time. Naturally, he can have better control than if he operates in the hospital and then lets the patient go out and tells some other doctor how to carry on the treatment.

The cases I have treated, with the exception of one, have made a complete recovery, and some of them who have returned eight or ten years later have shown a complete cure.

One of the cases I operated upon in 1910 for tuberculous peritonitis came in in a very critical condition. We went ahead with the operation, and after four or five years he broke down with tuberculosis and has been living for the past twenty years in Colorado Springs. He is getting along well, but developed a marked tuberculosis of the lungs. I have seen as much improvement in the plastic exudative type as in the ascitic type. I have seen cases in such a condition that it looked as if you had taken a hat full of sand, cement and rocks and matted them together. After laparotomy the improvement has been wonderful, and I think explicable.

When I heard I was to discuss this paper I decided to bring some roentgenograms. This is the case of a colored boy whom I saw three years ago in February. He came to me extremely emaciated, vomiting everything he ate. That is all the information I could get from him. I did not make a diagnosis until operation. This is the stomach picture immediately after barium meal. This is a stomach picture six hours later showing complete retention of everything in his stomach.

I opened his abdomen for pyloric obstruction. I found all of his intestines and stomach matted together with tuberculous peritonitis. I knew that an attempt to open the intestinal tract in the presence of tuberculous peritonitis would be fatal, because if you get a fecal fistula in tuberculous peritonitis the case is gone. I did nothing but remove the appendix and close the abdomen.

This boy is a porter and bootblack at the Edwards House. I gave him hygienic treatment for a few months. All of the obstruction disappeared. He got fat. He worked there for two years as a porter, but now is a t.b. This is most common unless they have prolonged treatment for tuberculosis.

I am sure that Dr. McCorkle has brought before us an important subject. Most people prefer this method to a laparotomy. In my own case, I believe I would rather have a laparotomy, because in that way you prove the diagnosis. Most of the cases I have operated on, thinking they were tuberculous peritonitis, have turned out to be something else, and then again I have found several cases of tuberculous peritonitis which I did not anticipate at all before operation.

With regard to the method of giving oxyperitoneum, I have given it only once, in a case that had a very bad heart disease. It was a case of sepsis which developed tuberculous peritonitis. For that reason we thought it best not to operate. Of course, in the West, where Dr. McCorkle comes from, they use the same apparatus for artificial pneumothorax. We don't use artificial pneumothorax. I dare say there are not four machines in Mississippi for artificial pneumothorax. I have a machine because I have practiced in the West. My method is simply to take a tank of oxygen that you can buy in a drug store and connect a tube to it and let it run through a little bottle of water with two stoppers. That cuts down the pressure. Stick in a needle and then put a tube from the needle to the bottle of water and then stick the needle in the cavity. It is a very simple apparatus and I suppose one could be put together for fifty cents.

Dr. Henry Boswell (Sanatorium): I appreciate Dr. McCorkle's paper. It was a splendid résumé of information along this line and his conclusions are certainly in accordance with our own work at the sanatorium.

I did not look up to see on how many cases we had actually used this treatment. I believe it was several though. We have been using it for about five years. I will say that we have used it with uniformly good results. Of the patients we have treated so far, all of them are living. We haven't had a death in our group.

As to the location for puncture, we find that has to be determined by the individual patient. You can make an injection in one side and get into a mass of adhesions and the patient will get no air, but you can inject the needle on the other side and be able to blow him up. After three or four injections the mass becomes loosened and he gets uniform distention of the abdomen.

The use of artificial pneumothorax equipment in this state is impractical, because, as Dr. Shands stated, there are no machines. The technic that we use is very simple, even simpler than that

stated by Dr. Shands. Oxygen is oxygen, and it is pure. There is no reason that it should be watched before putting it into the abdominal cavity. We have a tank of oxygen with a rubber tube and a needle on the end. We can feel the gentle blow of the oxygen on the tip of the nose, which is usually very sensitive. We stick the needle in the patient's side and give him oxygen until he is uncomfortable. We don't attempt to measure it. There is no reason for our measuring it.

That is all I am going to say about it. Dr. Hayes of California has perhaps given more pneumothorax than any man in the country. Dr. Price of Memphis has been using it for the last five or six years. Most of the cases we see are referred to us by the surgeons. Most cases of peritonitis are discovered on a diagnosis of appendicitis or something of that sort. Then they are sent to us and it is up to us to do what we think best.

We try those post-operative cases for a while on hygienic treatment. If they don't improve, we go in there with oxygen.

I am going to report two cases very briefly. One was a boy who was sent to us, his whole family having died of tuberculosis. He had a very definite, easily diagnosed tuberculous peritonitis. He was emaciated and had a large abdomen. I told his people that he would live for about thirty days so they brought him into the institution. We withdrew as much of the fluid as we could and replaced it with oxygen. All told, during the course of about fourteen inflations in that particular patient, we withdrew thirteen gallons of fluid and replaced it each time with oxygen. That young man finally got so well that he ran away. He is now in a school in Charleston and is as well as anybody. I have had several communications from the board of trustees.

I had another and the most remarkable case I have ever seen. If you surgeons can explain it to me, I am willing to say that I learn something every day. A young lady from this state was admitted to the institution with double pulmonary tuberculosis. She was placed on treatment. In a short time we discovered a beginning tumor in the lower abdomen. I had a surgeon examine her and his diagnosis was an ovarian cyst. The tumor continued to grow. He asked me if I could vouch for the girl. He declared she was pregnant. The tumor felt similar to a pregnant uterus at about six and one-half months. One night she developed what we all thought to be acute appendicitis. I called for the surgeon to operate on her and sent for her family. They came in on Sunday morning and we opened the abdomen. To our great surprise, when we got in there everything in the abdomen was a mass of adhesions, adhesions to the peritoneum, intestines, uterus, tubes and ovaries, with bloody fluid typical of millions and millions of little tubercles. I turned to the surgeon and told him to close her up. I walked to the outside to the father and the mother and said, "I am sorry to inform you, but your daughter will be dead within two or three weeks. She has double pulmonary infection and all that mass."

I went back into the room and told them to close her tightly and to put adhesive all the way around her body and we would put her on oxyperitoneum. We did so. The girl immediately began to improve, all symptoms began to disappear immediately, all pains were relieved. The tumor gradually disappeared for a while, and then disappeared entirely. Today there is no evidence of a tumor in her abdomen. She is strong and healthy looking and working in my roentgen-ray department. I am not hoping or wishing her any hard luck, but if I ever get an opportunity to go back into that abdomen I certainly want to go.

Oxyperitoneum is very valuable not only in tuberculous peritonitis, but in enteritis.

Dr. W. B. McCorkle (Closing): I was was glad to hear what Dr. Shands and Dr. Boswell had to say. My experience in peculiar phenomena after the injection of oxygen into the peritoneum has been along the lines described by Dr. Boswell. I can't understand why, though.

With regard to the technic in giving artificial pneumothorax, in our country pneumothorax machines are very common. It isn't necessary to know the amount of oxygen put into the abdomen, but we usually keep a record of it.

I believe you will find tuberculous peritonitis and tuberculosis enteritis more common than you think if you will look into it, and I know you will all be pleased with the use of oxygen if you will try it.

ABDOMINAL DRAINAGE*

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The subject of drainage in abdominal surgery is of grave importance. "Drain when in doubt" was the old admonition; "Do not drain when in doubt" is the new. What is one to do? You remember that case you did not drain when you would have given a chromo if you had drained; and you remember that case you did drain when you felt sure the drainage materal caused an infected wound. This qustion is not solved by an arbitrary statement but by careful consideration of all the factors involved.

The peritoneum, as pointed out by many observers, has not only an absorptive function but also one of resistance. It's absorptive function is markedly in evidence by profound symptoms following the slightest infection; it's resistance is demonstrated by the complete annihilation of a small, known amount of bacteria, and by the pouring out of large amounts of exudate, formation of adhesions, etc. in the more extensive infections. Herein lies the solution of the problem. Who can tell just how much a given peritoneum can resist?

The physiological and pathological reaction of the peritoneum to drainage material is of vital importance. "Yates, by his experiments, in placing different forms of drainage in the peritoneal cavity of dogs and then in a given number of hours filling the abdomen with carmine solution, was able to determine definitely that all forms of drainage was closed, so that absolutely no drainage from the peritoneal cavity would take place after six hours". Coffey, recognizing this rapid sealing-off process, applied the term "quarantine" to drainage. "The entire involved area must be thrown into one compartment by the proper placing of drainage material and the healthy parts thus quarantined."

Coffey also calls attention to the necessity of having the outlet of the drained area sufficiently large to prevent damming back of the rapidly forming exudate, maintaining that the exudate is composed largely of water and if not rapidly removed the watery portion is absorbed, leaving the fibrin to form extensive adhesions. The more rapid and complete the removal of the inflammatory products the less the adhesions.

In considering the physics of abdominal drainage two forces have usually been considered, that of gravity or so-called dependent drainage, and that of capillary attraction. Dependent drainage is practically limited to the cul de sac in the female. Capillary drainage is brought about by small tubes, gauze, folded rubber tissue, etc. The third force, and one which has not been emphasized in the literature as far as I have been able to discover after limited search is that of intra-abdominal pressure. The abdominal cavity is not a rigid box but one whose walls are made up largely of muscular tissue and is subject to varying degrees of intra-abdominal pressure. Fluid within this cavity will be forced through an open tube regardless of gravity or capillary attraction. I have seen, while dressing wounds, large clots of blood forced up through open tubes for a distance of two or three inches above the ends of the tubes. Gauze in the tubes is a hinderance and is not needed.

It is important to remember that this intra-abdominal pressure, which is forcing the exudate from the abdomen, is also forcing the wound open and is pressing in on the drainage material. The wound edges must be held stationary for the time being, to prevent eversion, and must be brought closer together as the drainage material is removed. Also, there must be no lateral openings in the tubes for the same

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pressure will force the delicate tissues into these openings and prevent the painless and non-destructive removal of the tubes. Again, this same pressure will rapidly close the cavity occupied by the drainage material if the drainage material is removed before firm adhesions have formed.

To illustrate by concrete example, let us consider the drainage of an abscessed appendix occupying an area of three or four square inches on the posterior abdominal wall. Soft rubber tubes, but hard enough not to collapse, one-fourth to there eights inches in diameter with longitudinal sections cut from the lower end are used. The appendix and all debris has been removed and contamination of uninvolved tissues prevented. A sufficient number of tubes are placed in to cover the entire involved area. The wound is sutured loosely up to the tubes as usual. Now untied through and through silk-worm gut sutures are placed every half inch in the remainder of the wound. These pass between the tubes and do not interfere with the removal of the tubes. At the end of twenty-four hours there has been an enormous discharge and the wound has tightened about the tubes. About half of the tubes are removed, which reduces the size of the cavity and relieves the pressure and thus the pressure necrosis. This pressure necrosis and infection, due to prolonged drainage is why, to my mind, drainage has come into disrepute. No pain is experienced in removing these tubes. The wound edges must now be brought in but not entirely in contact by tying the sutures already placed. The remaining tubes are antisepticised at the skin edges with mercurochrome. The second day the discharge has materially decreased, and, depending on its character and amount, all or nearly all of the remaining tubes are removed and the sutures tightened again. The tubes, as they are being removed, are clamped at the outer end to prevent the fluid standing in them falling back into the cavity.

Often in mild cases where there is some doubt whether drainage is needed or not, only one tube is used which is withdrawn in twenty-four hours, it having removed an enormous amount of discharge and made an easier convalescence even though the defensive powers could have overcome the infection alone. When the tubes are removed thus early and the wound properly treated, healing is by first-intention and no harm has been done.

Coffey enumerated four qualities which drainage material ought to possess when used in the abdomen:

1. The surface on the side of the general peritoneal cavity must be smooth and inoffensive to the abdominal organs coming in contact with it.

2. It must remain accurately in place.

3. It must provide ample drainage of the infected and injured segment.

4. It must be so constructed that it may be removed with the least possible trauma.

Soft rubber tubes used as described meet all the requirements, and better it seems to me, than his system of numerous small strips of gauze surrounded by rubber tissue, which is only an improved cigarette drain.

As to drainage in general peritonitis, it seems to be the consensus of opinion that the point of origin of the pus and localized abscesses should be drained. It is conceded that there is no known method of draining the abdominal cavity as a whole due to the sealing-off process about the drainage material. This emphasizes again the importance of draining just as large an area as the inflammatory process involves.

As to the question of when and when not to drain, every surgeon must decide that for himself. As for me I will drain whenever there is the slightest oozing of blood which cannot be controlled; when-

ever pus known to be active or virile comes in contact with peritoneum which is not to be removed; whenever the smallest bit of gangrenous or infected tissue must be left within the cavity.

A more important question than whether to drain or not in doubtful cases, is what sort of drainage to use, how to use it, and how soon to remove it. Why not drain when in doubt when a drain can be used which will safe-guard the patient's life, which will do no harm, which can be removed without pain, which will make convalescence easier, and which will not delay healing of the wound?

SOME ACUTE CONDITIONS WITHIN THE ABDOMEN*

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As "procrastination is the thief of time", so, in my judgment, is delay the greatest single factor in the mortality following surgical procedures. This is especially true in dealing with acute inflammatory conditions within the abdomen, where the process at the outset is usually confined to a single organ which can generally be removed, or surgically dealt with, without great hazard to the patient. Long has the proper manner in which to deal with acute conditions within the abdomen been a fruitful source for controversial argument; so long, indeed, that it would seem there should have been evolved a practical unanimity of opinion. That this is not true, however, is evidenced by replies that I have received to a questionnaire sent to many of the leading surgeons of this country and abroad, answers being received from one hundred and thirty-seven.

Three queries were propounded and to these three I shall confine myself in this paper. The questions asked were: as to the advisability of immediate operation in acute cholecystitis, acute appendicitis and acute salpingitis, with the further request that I be supplied with data as to the relative mortality and morbidity in early and late operations for acute salpingitis.

I shall deal with the question of appendicitis first because of the almost absolute uniformity of opinion, as expressed by my correspondents. Of the entire number, each expressed himself in favor of immediate operation when seen early. Three would wait for a day or so, if the case is seen after the expiration of from forty-eight to seventy-two hours and sixteen would not operate in the presence of a diffuse peritonitis. The concensus of opinion, however, is that the mortality rate is in direct proportion to the length of time that has elapsed since the inception of the disease and that operation should be done immediately except in the moribund.

With reference to acute cholecystitis, sixty-seven favor immediate operation, sixty-two counsel delay and four were non-committal. Of those who advocate delay in this condition, practically all advocate operation where there is evidence of severe toxemia, gangrene, threatened rupture and so forth.

As to the question of salpingitis, twenty-two are in favor of immediate operation, ninety-seven are in favor of delay and four are non-committal. From these statistics it is apparent that there is a great lesson yet to be learned.

For many years the question of how and when to deal with appendicitis was unsettled and it was not until the teachings of Murphy brought this question so forcibly into the forefront of medical discussion that the profession began to realize the imperative need of immediate operation. The arguments advanced at that time for delay in appendicitis were much the same as those advanced now for delay in the acute inflammatory conditions

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which we are here considering. It was argued that probably eighty-five per cent would recover from a given attack, operation being advised in the interval between the attacks,, losing sight of the fifteen or more per cent who would not recover without local abscess formation, peritonitis and other ills attendant upon this affection. It was from this fifteen or more per cent that the surgeon reaped his highest mortality, a mortality which, perhaps, exceeded the deaths from all other surgical causes combined. Gradually it was forced home that cases operated on within the first twenty-four or forty-eight hours, or prior to rupture, carried practically no mortality at all and then began the long campaign of the education of the doctor and the public until today it is well known to the laity as to the profession that operation as soon as the diagnosis is made is one of exceeding simplicity and without hazard. So much has this self-evident truth been recognized that, whereas in years gone by the patient was brought to the hospital only after having been practically coerced into it, now, they have only to be apprised of the diagnosis to seek prompt surgical relief.

I cannot say that I am in accord with the principle that cases of spreading peritonitis should be allowed to become quiescent and then drain. There is the strongest probability that these cases will go on to a fatal termination or that operation will be forced at the most unfavorable stage. To me, there is no greater truism in medicine than *"Ubi pus, ibi evacuo,"* and the dictum laid down by Murphy that it is pus under pressure with the ensuing toxemia that is the cause of death, meets with a hearty response from the bulk of the profession. Get in and get out with the least possible loss of time and with the least amount of traumatism and, if possible, remove the appendix, as it is the *casus morbi.* We have made it a rule in the drainage of peritonitic cases to have the dressings changed, not at any stated interval, but whenever they begin to become saturated. Drainage is capillary in its nature and a dressing that is saturated will not drain, hence, we frequently have our dressings changed every thirty minutes, or even oftener, during the first few hours after operation. We believe that by this procedure alone we have saved lives that we would have sacrificed otherwise. This, of course, is coupled with postural and other treatment. We cannot see the *rationale* of postponing operation after the third or fourth day and then operating on the fifth or sixth if the case is not progressing favorably.

In regard to acute cholecystitis, from the answers received, the profession is about evenly divided as to early and later operation, with a slight preponderance in favor of the former. Of those who advocate delay in this condition, practically all advise operation where there is severe toxemia, gangrene, threatened rupture, etc. It is true that many of these cases will recover from a given attack, but rarely will the patient submit to operation when not acutely sick, until a long train of digestive disturbances or repeated attacks with their consequent complications force him into the hands of the surgeon. The logical conclusion, it seems, therefore, would be to operate upon these cases in the first attack as soon as the diagnosis is made, just as we do in appendicitis. We all recognize the fact that most of these cases have recurrences and that sooner or later operation is practically inevitable, for, as emphasized by Deaver, all surgical conditions of the biliary tract are infectious in their origin, with the exception of new growths, and once the gall-bladder becomes the seat of infection, it is apt to remain infected until surgically drained or removed. As to cholecystostomy or cholecystectomy in acute cases, I shall not touch on this phase of the subject, for the surgeon should be guided by the conditions that exist and what his judgment tells him is best to do for the individual

patient. This much is true, however, that if we see these patients in the first twenty-four or forty-eight hours of the initial attack, it is very likely that cholecystectomy would be the operation of choice, that the mortality would be but slightly increased and that the morbidity would be greatly lessened.

It is with our dilatory methods in the treatment of acute salpingitis that I have been most impressed. The replies received concerning this question have been most diverse and most interesting, for instance, to quote one correspondent, he says, "I rather hesitate to state my views in regard to acute salpingitis. I have never operated by choice on these cases in the very early stages, but, during the last nineteen years, I have operated on eight cases under a mistaken diagnosis and found the tubes acutely inflamed, with pus oozing from the fimbriae. Realizing my unhappy position, I carefully removed the tubes and closed the abdomen without drainage. There has been no mortality and patients have made rapid and uneventful recoveries and up to the present time, the morbidity has been splendid." One very distinguished surgeon writes, "I never try to cool off an acute abdomen, but operate upon the acute salpingitis case without waiting for it to subside and cannot recall any single mortality as a result of early invasion of the abdomen in these types."

Another, while delaying operation, writes, "An immediate operation is not accompanied by a high mortality and shortens the period of morbidity materially, but, as it is the custom to wait until the acute symptoms subside, I have gotten into the habit of doing so, but I really think that it is best to operate at once and close up tightly." Still another says, "My practice is to defer operation until after the acute symptoms have subsided. The reason is, that all of the cases of gonorrheal origin that I have seen have had repeated attacks and need hysterectomy. I am not convinced that the mortality would be increased or the morbidity not reduced if operation were done early in the first attack in such cases." Still others have operated under a mistaken diagnosis and carefully closed the abdomen without disturbing the tubes.

The economic aspect of this question is one that should receive great consideration. In one of the charity hospitals with which I am connected, the proportion of admissions for salpingitis to the whole number of patients both male and female, has been fifteen per cent. The statistics as to the average duration of the disease priod to admission to hospital are not at my command, but I should judge that eighteen months would not be far wrong. Of these cases many have severe complications and in the majority, hysterectomy with removal of both ovaries is necessitated. The operative difficulties that are encountered are frequently great and the post-operative complications which may result from leaving raw surfaces, impossible of covering up, are not to be ignored.

The statement is made that many of these cases will go on to recovery and that some few have had a complete restoration of function. This same statement might well be made with reference to most of the conditions which we regard as essentially surgical, but it is probable that for every one who has this happy outcome there are many, many times the number who are doomed to a protracted morbidity. Even where the function of the tubes seem to be restored, sterility is the rule, or if pregnancy occurs, there is a strong likelihood that it will be ectopic.

A report comes to me from the Charity Hospital at New Orleans that the mortality in the cases operated upon during the acute stage has been sixteen per cent. This is tremendously in excess of statistics that I have been able to obtain elsewhere, and I am constrained to believe that this

represents the mortality from operations during recrudescences of cases of old standing. Surely, I think, no one would contemplate operating during the acute stage of an old salpingitis, where adhesions are firm and dense and where there is great danger of spreading a virulent infection. Here, at least, should the acute inflammatory process be allowed to subside before attempting to give surgical relief, as practically all of the damage one expects to encounter has resulted from a prior attack. It is in the acute stage of the initial attack that I believe operation will give the greatest amount of relief with the greatest preservation of the pelvic structures. Instead of this being a radical measure, I regard it as the most conservative. Many of these cases come to us with a diagnosis of acute appendicitis, hence we see them within the first twenty-four or forty-eight hours of the attack, when the inflammation is just spreading into the tubes. We deliberately undertake operation at this stage, knowing that the operative procedure will be as simple as that for an acute appendix, unruptured, and believing, from past experience that the mortality will be no higher. It is true that the tubes are sacrificed and that a small percentage might go on to recovery but we think this is small reason for deferring operation when we are able to preserve the health of the individual at a minimum of risk. There seems to be no valid reason why all acute inflammatory conditions within the abdomen have not, underlying them, the same surgical principles. Is the lesson lost when one writes that he never of his volition operates upon an acutely inflammed tube, and yet, when the abdomen is opened through a mistake in diagnosis the tubes are removed and the patient makes a speedy recovery without subsequent morbidity? Does or should this not teach us that those cases which come to us so early as to be confounded with an acute lesion of the appendix or other acute diseases of the abdomen, should have the benefit of operation when all of the pelvic organs except the tubes can be preserved in this entirety? If this be true, then it is time that we should begin a campaign of education to teach that the *bete noir* of surgery is delay. The doctor and the laity should be impressed with this one fact; that persistent abdominal pain is practically always an indication for surgical intervention, the colics being excluded, and that those conditions which will likely come to operation sooner or later had very much better come sooner than later. The principles of surgery will always remain the same and he who attempts to formulate varying rules of procedure for conditions fundamentally identical often finds himself lost in the mazes of uncertainty.

The annals of medical literature are filled with pleas for the early recognition of this, that or the other condition; we have stood aghast at the inroads made by some of the more virulent infections in the space of a few hours, yet, notwithstanding the fact that we have proclaimed our warnings from the housetops, many of us have elected to single out a disease which is left to work out its ravages unmolested by us. Let us meet the issue with the courage of our convictions; that custom should govern our actions when at variance with our own opinions, is to be untrue to ourselves and to the profession, whose votaries we are. Too often before has the pendulum swung, and the dictum of yesterday become the fallacy of today, and the status of no disease can be regarded as settled which is sending to our charity hospitals in the South from ten to fiteen per cent of their total admissions, there to be subjected to mutilating operations. The possibility of a restoration of the procreative function is a sentiment, the certainty of disaster in the vast majority of cases of salpingitis is a stern reality; let us face facts, not fancies.

DISCUSSION OF PAPERS OF DR. HIGHTOWER AND DR. BARKSDALE.

Dr. S. H. Hairston (Merdian): Dr. Barksdale was kind enough to send me a copy of his paper before this meeting, as I requested him to do. It struck me so forcibly and as there were a lot of things that I wanted to say, for fear I would leave some of them out, I wrote what few remarks I want to make.

I know a good many of you are going to differ with what I have to say, but I am like Dr. Barksdale. I think if you live long enough you will be eating out of my hand.

I am sure we all enjoyed and appreciated Dr. Barksdale's paper. We can see that he is thoroughly convinced about some things. I honor him for his convictions. I have always adopted the plan not to be cocksure about anything. We can never tell which patient will get well, whether we operate or not. Generally speaking, I preach it is better to operate early on ninety and nine cases through a mistake than to let one go too late. The mortality and morbidity is reduced. The patient is soon able to return to work and he or she becomes a producer instead of a consumer only.

When to operate is still an open question on which the greatest minds of the profession differ. I will not try to settle it here today nor to discuss it. My own personal practice is to operate in most cases as soon as the diagnosis is made. I believe we save lives by it. However, good men claim that pelvic infection has almost gotten to be a non-surgical disease. The tendency nowadays is to treat the patient and not the disease.

I want to direct most of my remarks to drainage. I want to ask the question: Why do we drain? The old adage, "When in doubt, drain," no longer holds good. It is rather the reverse. Why do we lance an abscess? Is it to get rid of the pus? Not entirely. Is it to get rid of the infection? No. The infection is not in the pus mainly. It is in the abscess walls and cannot be reached. It relieves tension only. By lancing you do not hasten the termination or destroy the infection. I contend that by removing the pus by lancing and squeezing, you extend the infection and lengthen its duration. The pus that remains after the infection has passed is nothing more than an inflammatory residue. It is a protein as well as a vaccine and an antitoxin combined.

Let us apply this to the abdomen. We know that bacteria create a toxin that is destructive and fatal to themselves. We know too that bacteria in pus do the patient no harm. They are either dead or sick. Unless they are active they create nothing. Those that are sick have to be transferred to new and fertile fields to revive. The only bacteria doing harm are those imbedded in the peritoneal wall or surfaces. No amount of drainage, washing, or sponging is going to remove them. They can be destroyed only by the natural immunity of the body and by the toxins of their own manufacture. By draining out or taking away this pus and these toxins, the bacteria are allowed to thrive unmolested and their growth is favored until overcome by the natural body immunity.

Dr. Barksdale spoke of changing dressings very frequently in the beginning, or as soon as they become saturated. He said saturated dressings would not drain. I gather from this that he is changing the dressings for drainage. I change the dressings as often as they become saturated, but not for drainage. In pus cases, I put in a small split rubber drain down deep in the pelvis. I do not put this to the bottom for fear of pressure perforation. I put this in to allow fluids to escape and to relieve intra-abdominal pressure and thereby helping blood and lymphatic circulation. No tube is going to drain the abdominal cavity more than eight hours. By doing as little as possible, producing the least amount of trauma, few or no adhesions are going to form. The chances of intestinal obstruction are lessened to a minimum.

All of you will agree that injections of sterile milk, intraveonus therapy, and vaccines have no place in the treatment of this condition. Vaccines are dead bacteria and the body has enough of these already. Any specific therapy given with the idea of destroying the bacteria is worse than useless. Treatment directed toward sustaining the body resistance is the only one of value.

Put the patient in the Fowler position; give morphin for pain, water by mouth and rectum, salt and glucose solution by Matas' drip, frequent use of the duodenal tube if necessary; absolute quiet in bed, with a good nurse; and a very large per cent of your cases will get well. I have lost only three cases in the last six years. Two were small children with a gangrenous appendix and the other was a large woman with a Neisserian pus tube who developed pneumonia.

To carry out the ideas I have expressed requires unlimited confidence and a world of faith. The temptation to wipe out all the pus and put in multiple drains is great. To stay your hand requires good judgment and good control. To seee all of your peritoneal infection cases get well is a good faith tonic and it at least makes us feel that we are not doing the patient harm instead of good. We can feel, too, that we are not taking from our patients one of the great weapons with which to fight disease.

Dr. A. G. Payne (Greenville): I hold in my hand a rare book—the transactions of the Missis-

sippi State Medical Association many years ago. Recently I thought of a paper that I heard a great many years ago, in fact twenty-four years ago in Jackson, by one of our then Mississippians, but now ex-Mississippian, and one of the best surgeons in the whole South.

In reference to infections in the pelvis he says (and this is his closing remark on a valuable paper at that time): "Kelley expresses it as a saddle-back on both sides. In all such cases, gentlemen, we have removed both tubes and both ovaries. The number was sixty-four cases and we are thankful and even proud to say that we have had no deaths in this number."

There are sixty-four cases of women who have gone the usual route, brought about by men who operate in the acute stage.

There are few men who have enough nerve to come out leaving the patient intact after a mistaken diagnosis—a mistaken pelvis infection for an acute appendix, for example. I maintain there are too many women denied motherhood. We all learn, as Pollock says, by our mistakes.

There is one thing that Chapman said when he was in New Orleans a year ago. He said, "The best surgeon today is the man who lessens surgical conditions." I don't think a greater truth than that has ever been uttered.

I am reminded of something one of my associates told me recently. He said, "I have seen you treating people in your office whom, years ago, I would have treated in the afternoon and operated the next morning."

I started to think about that. I talked to Dr. Crawford along the same line. He said that recently he had his stenographer go over a list of patients who had been in the office, and I think about eighty-five per cent of those patients, years ago, would have been operated on.

Gentlemen, we are coming to the idea of lessening the amount of surgery. In a great many cases if we take stock of our case and find it is more than useless, we can then direct our endeavors to something more beneficial to the patient.

A few years ago I had an experience with an acute gall-bladder lesion in my own daughter. She had had gall-bladder trouble for over a year. I let her go to Europe with that gall-bladder feeling that possibly she could get along for a while with it. After she came home she had a severe attack. Morphin would not relieve the pain. It was in the cystic duct and the pain could not be relieved. It was in the cystic duct and could not be relieved by morphin hypodermics. We gave her chloroform almost constantly. Her blood count was 30,000. I didn't know what to do.

She said, "Dad, take me to the hospital and operate on me now."

I said, "You can't stand it, my dear child. Now would mean death."

We must realize that in a good many of these acute conditions which will submit to operation, if that patient dies, that is just one more death. But, gentlemen, if we had to face the funerals in a good many instances, we would stop operating on those acute conditions.

Dr. J. C. Cully (Oxford): I have listened with a great deal of interest to these two papers. I have followed Dr. Barksdale very closely for the last five years. I noticed in the résumé, the replies from various sources over the country on the paper which he read before the American Medical Association on this subject were mostly from surgeons from the North. We of the South see a different condition of pelvic infection from that in the North. Most of these cases are gonorrheal infections. I feel that I would be perfectly justified in following a man like Dr. Barksdale rather than following those men who have given such varied opinions.

In other words, where are we? As Dr. Hightower said, some say drain, some say don't; some say take out an acute pus tube, some say leave it in. I believe every case is a law unto itself and we have to treat each case as we see it at the time of operation.

I have operated on five cases of acute salpingitis. All of these patients had pus exuding from the tubes. I did a salpingectomy in every case and every case had an uneventful recovery. Those cases were not castrated, because castration means removal of the ovaries. Why remove the ovary? If there is any reason for removing the ovary, then castrate.

I believe if you have acute gonorrheal infection with pus pouring from the extremity of the tube, you are going to have a tube which will never function afterwards, so why not remove that just as you would an acute appendix or any other condition?

I will admit that at least three of those five cases were mistaken diagnoses. They were operated on for acute appendicitis. I didn't do as Dr. Barksdale did. I simply came clean with the patients. I told them that I made a mistake in the diagnosis, but that I operated as I should have and explained the matter to them.

I have one question to ask concerning drainage. How long does drainage serve its purpose? Some say six hours, some say eight, and others say twenty-four. Drainage serves its purpose only six or eight hours.

I want to make one suggestion in regard to Dr. Hightower's tubes. If he is going to use tubes, all right. Sometimes I use a lot of rubber tissue rolled together. Sometimes I use a cigarette drain by taking a soft rubber tube drain and slipping it into the small rubber tube.

Within the first six hours after you institute drainage, in order to prevent the very thing that Dr. Hightower said you might have, simply take a No. 10 to No. 14 catheter and slip it into this tube which has previously been split. My tubes are not nicked at the bottom like this. The tubes which I use are simply round tubes, split all the way down.

Within six to eight hours I slip a sterile catheter to the bottom of that tube, pick up the catheter with an artery clamp, hold the arrtery clamp so the tube can't slip out, and slip the tube off over it. Then you have a tube that is down to the pocket of the pocket which keeps the bowels from closing in. The next morning, slip it in this tube and the next morning slip it in this one. Within three days you have all your tubes out and a little catheter placed in each pocket which you can leave there. Usually within one week's time I have all of them out and the wound is healed within three weeks' time.

Dr. Augustus Street (Vicksburg): Gentlemen, in listening to the discussion of these papers it would sound as if we didn't know anything, especially when one man gets up and says one thing and another man gets up and says just the opposite. We do know something. We have had some experience and we can learn from experience. We know when a patient is desperately sick. We know when they are getting better, and we know when they are getting worse. We know from experience (this is not opinion) that acute pelvic inflammatory conditions, especially those that haven't formed large masses, will promptly clear up with a little palliative treatment, little rest, an ice bag, and so forth.

I do not say that it is going to kill them if you operate. I just say that it isn't necessary to operate on acute pelvic inflammatory conditions.

If an acute gall-bladder case comes in, usually in a man around forty years of age, and you don't know much about him except that he has an acute gall-bladder, you can observe him. If he is in a desperate condition, and his doctor has been giving him morphin for three or four days and his pain is not relieved and he is going from bad to worse, you can go in under local, tap his gall-bladder and relieve him. All of us have done it, and usually with good results.

If a man comes in who has symptoms in the region of the gall-bladder, apparently gall-bladder colic, and you refrain from giving him food and give him glucose in the vein and lavage his stomach for vomiting and you see by his blood picture and general condition that he is improving, there is no objection to letting him improve a little bit. Then when he gets in condition you can do your operation, because in an emergency puncture of the gall-bladder you don't see in the abdomen and you may see things when you can go in there that you would like to do but dare not in a man who is desperately ill.

I say that we do know something about these propositions. We probably are not so very far apart in our opinions. It is merely usage, that which we have learned by experience and observation of our cases and governing ourselves accordingly.

Dr. T. B. Sellers (New Orleans): I want to say one word about operating on pelvic infection or salpingitis. I have at least ten cases that had a definite Neisserian infection of the tube who have given birth to children, all occuring in my practice. Neisserian infection is not necessarily a surgical condition. I believe eighty per cent of them will get well without surgery. It is a medical condition and it is only a surgical condition when cleaning up the adhesions or dysmenorrhea. Relieve the adhesions and leave the patient alone, but a large percentage will get well without abdominal section at all.

There is one other point. If you go into these cases of salpingitis, very frequently it is unilateral. Are you going to take out the one tube involved and leave the other, or are you going to take both tubes? The chances are if you leave one tube and she has an infection in the cervix, she will get the other tube involved.

From my standpoint, I would say that a Neisserian infection is not a surgical condition. I think it is a medical condition and I agree with Dr. Payne. I believe that gynecology is as much a medical specialty as it is a surgical specialty.

Dr. J. W. Barkdale (Jackson): With regard to the surgical phase of salpingitis, in some hospitals there is a mortality of fifteen per cent in those not given surgical relief. One has only to look into a great many of these cases to see the tremendous amount of damage that has been done by an inflammatory condition of long standing (in some it looks as if plaster paris had been poured in), and the great morbidity in those patients in which it has been existing for a long time, to be convinced of the fact that had that patient been operated on at an early stage when the tubes could have been removed, just the same as removing an appendix, the patients would have been well.

I don't know how many cases there are that have had a Neisserian infection which the doctors have let run on and on. The mortality rate in children in the later stage is not over four per cent. When you do an early operation, you are trying to save that patient from the long train of ills and evils and suffering that follow an inflammatory condition that has spread out over the entire pelvis and eventually lead to the thing that Dr. Payne is trying to prevent, not only castration, but the effect of hysterectomy and the dangers attending that tube. When you operate early (I mean within the first forty-eight hours) you have absolutely nothing to encounter but tubes.

In answer to the question asked by one doctor, we always remove both tubes, because where there is one tube infected there is nearly always going to be another. This is done without any hazard to the patient, without any of the ills attendant upon a more difficult operation, and we feel we have conserved the health of that patient in doing so. We never touch the ovaries. Why should a doctor castrate a patient because of a tubal infection? We are dealing with a tubal condition and not an ovarian condition.

I was very much gratified with Dr. Cully's discussion in that he is following the same procedure as I. One of the doctors in discussing Dr. Payne's paper emphasized the same thing.

As I said, twenty-two per cent of those to whom I wrote (most of whom were in the North, but some of them living in the South) are doing an immediate operation, notwithstanding the fact that the dictum has gone forth that this is a settled question. It is not a settled question. As long as men doubt, the question is not settled.

Some of the doctors, Johnnie Erdmann and Robert T. Morris, men of that caliber, wrote letters that would burn you up because of the fact that we should try to discriminate between these conditions as you would between any other acute inflammatory conditions.

My personal belief is that nearly all inflammatory conditions in the abdomen are essentially surgical by nature.

I am going to touch briefly on a few cholecystitis cases. If you operate in the early acute stage, nearly all of these are loosely attached to the liver and they separate very readily and you can remove them without draining. If you let that man get into a dying condition and then want to operate, your mortality is going to be higher. There is no mortality from early operation in any abdominal condition. Of all the men who reported to me as operating early (within twenty-four hours), there was not a single death.

Dr. Shands spoke about operating on a girl three years of age. The first man I saw do an elective operation for salpingitis was Dr. Shands. That was two or three years ago. He never had any trouble. Why? Possibly because he understands the technic.

Merely for the reason that a patient may have a child does not outweigh the deaths that would accrue from later operations? Does that outweigh the tremendous amount of damage that has been wrought by salpingitis? That is a sentimental reason to postpone operation because of the fact that the woman may have a child, when the chances are she may not have one. She may not want any. Of course, we are not operating because people do not want children.

As I said before, you are dealing with a hypothetical question. You are placing an actuality against something that may or may not happen.

In my paper, the fundamentals of surgery are the same. I still say that I am going to operate regardless of what the case may be. It may be an acute salpingitis, an acute obstruction, an acute appendicitis, an acute cholesystitis, or what not. The man who puts off operation under these conditions and waits until operation is forced is going to have a higher mortality and a higher morbidity than the man who operates early.

Dr. Street said they may cool off. How do you account for this vast number of cases entering our charity hospitals all the time, and for that matter our private hospitals as well? It means that the great majority of them do not cool off as he intimated they would. We might apply the same reasoning to acute appendicitis. Eighty-five per cent of them will get well without operation. We know that. Why operate? Why not cool it off until you are forced to operate and then have the patient die? We have gotten away from that.

Just as surely the trend of thought is moving in the other direction and the time is coming (and I make this prophesy) when they are going to operate early in all of these cases.

Dr. C. C. Hightower (Hattiesburg): I agree with Dr. Hairston that the great majority of doubtful cases will be taken care of without drainage, but I believe the convalescence will be more tardy, the adhesions will be greater, and the outcome will be more doubtful. I believe that when a large amount of exudate is pouring out if it is not re-

moved it results in the formation of adhesions, due to the absorption of the water from this material, leaving the fibrous products there. In other words, I believe if proper drainage is removed at the proper time you will have a great many less adhesions than you would have if you did not drain at all.

With regard to what Dr. Cully said about cigarette drains, why fool along with cigarette drains and rubber tissues when, if you leave a big opening there by rubber tubes, the abdominal pressure will pump out the fluid, not in drops but large streams? He is arguing against his own point. He said that drainage was good for about six hours only. If it is good for six hours, make it very good. Don't dam it back at all. Let it come out freely. It certainly will not come out with the use of rubber tissues or cigarette drains. They will close in and prevent free exit of the exudate.

INDICATIONS AND CONDITIONS FOR CESAREAN SECTION.*

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There are two groups of indications for cesarean section — absolute and relative. The absolute indications is contracted pelvis. Relative indications are largely based on general conditions such as accessibility to a standard hospital and qualified surgeon and assistants. Among the important relative indications are the following:

Placenta previa, at or near term, with the mother in good condition, no infection, child alive, placenta central or largely covering os. An example of such a case is that of Mrs. P., age 35, a multipara, who was seen March 8, 1929, with a pulse of 170 before operation, bleeding, and whose baby was dead before the operation. The mother is now living and well.

Abruptio placentae is an indication for the operation when the birth canal is totally unprepared and the woman is in a hospital or can reach one in time.

Eclampsia, at or near term, with the birth canal unprepared and the condition of mother and child will permit. In such case, the ease and speed of cesarean section as compared to hours or days of waiting for normal or forced dilatation, naturally makes it assume a very much more important place in the treatment of this condition than a few years ago. As an illustration, Mrs. B., a multipara, with a blood pressure of 230, was seen, unconscious, on February 14, 1929, with the urine containing casts and albumin. She was promptly operated upon so that the mother and baby are now living and well.

On October 14, 1928, Mrs. T., had had two convulsions; her bood pressure was 195; she was conscious, and the urine showed casts and large amount of albumin. The operation undoubtedly saved the life of the mother and child.

Habitual death of fetus in labor, when not due to syphilis, in cases where one or more babies have died during labor and the parents are desirous of a living child, comes to be almost an absolute indication provided the mother and child are in good condition. Two such cases are recorded here:

Mrs. S., aged 40, a multipara, had three previous labors with dead babies. She then had a cesarean section. The operation was successful and the mother and baby are now living and well.

Mrs. C. W., aged 35, weighing 260 pounds, was in labor two days with the membranes ruptured. After the operation, the mother died on seventh day of peritonitis; the baby is now healthy and active.

Uterine tumors, large and interfering or making delivery impossible, in which condition cesarean section is the operation of choice provided the woman is in good condition, not exhausted from labor, there is no infection, and child is living.

Rupture of uterus, early and beginning, if the mother's condition is good and the baby is living, cesarean section is a choice procedure almost without regard to dilatation, furnishing a means of closing rupture.

*Read before the Section on Surgery at the Sixty-second Annual Session of the Mississippi State Medical Association, Gulfport, May 15, 1929.

December 19, 1928, Mrs. B., primipara, came to hospital for cesarean section as uterus had ruptured after being in labor 36 hours. Mother and baby are now living and well.

Congenital deformity of vagina, where delivery is impossible, cesarean section with hysterectomy is the operation of choice. This, of course, is a rather rare indication for cesarean section.

Mrs. K., age 20, primipara, had this lesion. She was operated upon and mother and baby are now living.

In certain tedious, difficult labors, with excessive size of fetus, cesarean section is to be considered. In fact, with the increasing numbers of well equipped hospitals and well trained surgeons, this operation assumes a more important place in major operative procedures. The relative safety to both mother and baby is responsible for the fact that this operation is looked upon more and more favorably from year to year.

SUMMARY.

The operation done in these cases was the abdominal, with incision just to left of median line, the navel being the center.

In cesarean section, the condition essential for the maximum safety of the mother are: (1) Good general condition; (2) absence of marked labor exhaustion; (3) unruptured amniotic sac; and (4) an uninjured and uninfected birth tract.

With the mother in poor condition, with a ruptured bag of waters, even though there may be infection, it will be found at times that a cesarean section is the operation of choice, with the consideration of a hysterectomy at the same time.

DISCUSSION.

Dr. J. P. Wall (Jackson): I think the essayist is to be congratulated on one thing. He had a short paper.

I do not know anything in the ordinary run of affairs that is easier to do than a cesarean section. From the standpoint of facility of accomplishment, celerity of action, and the melodramtic appeal to the average layman, it is a corker; but, gentlemen, aren't we doing too many cesareans sections? The doctor says there is one absolute indication and that is disproportion between the passage and the passenger. He is absolutely right. Then he gives some relative reasons. They look to me as though they are far distant customers and especially the eclampsia.

Two years ago the New Orleans Medical Society made a review of the cases of cesarean section in the New Orleans hospitals. The Charity Hospital gets the class of cases in which they have to do 1.2 per cent of their obstetrical cases by hysterectomy. The Presbyterian Hospital did 5.4 per cent. When you stop to consider statistics the world over which show that an eclampsia in the best clinics will run anywhere from 1 to 3 per cent in a thousand deliveries, it looks to me as though we are doing too many. We all have a misconception of how it oringinated. We all think of Caesar as being the first cesarean section. It is not true. In Caesar's time, only women, who it was known would die, were delivered through cesarean section. A Swiss has written that midwives worked for two days on his old lady and he finally did a hysterotomy and delivered a large child and the woman lived. Only fifty years ago a missionary in Africa saw a native perform a cesarean section, using banana oil in a dual role of antiseptic for the mother and child.

Cartier in the last century said that up until his time not a single cesarean section case in Paris had lived. Bach in Vienna said the same thing, but in 1877 when Caro came along with his supravaginal amputation of the uterus, and then a few years later Sina with his suture to control hemorrhage, and Lister with his work, they made it a comparatively simple thing from the surgeon's standpoint.

Coming back to eclampsia, statistics of these hospitals in New Orleans show that in charity hospitals, out of sixty-nine cases of cesarean section for eclampsia twenty-five of the mothers died. In the Johns Hopkins Hospital, the maternity mortality in the eclampsia cases is 30.8 per cent. In the Lying-In Hospital of New York City, they had a maternity mortality of 44 per cent up to 1926. Since 1926 they have been using, and using consistently, the Karanoff method in the charity hospital.

In Dr. King's article, which was recently published in the Journals, covering his last thirteen cases of eclampsia treated by his service, four of the babies were dead on admission, two babies died from delivery, seven were delivered healthy, and all thirteen mothers lived. Gentlemen, I contend that where you can get one hundred per cent

mothers living, it is a darned sight better to take the majority of ten per cent for mortality the country over.

These cases in New Orleans showed that the average duration of gestation was five and one-half months. Over twenty per cent of the cases were premature cases and those premature cases showed five and one-half months of gestation.

I would say that there is not a half dozen men in the crowd who know how to use a pelvimeter. You talk about the lying diameter and the width diameter of the pelvis, and you probably should remember eleven, twelve, and thirteen centimeters. But you do not do it.

These were indications given by patients as reasons for requesting cesarean section. One patient did not care to go through labor; another woman had an acute arthritis of the left ankle. Of all the cases that were called because of pelvimeter measurement, only one out of ten was measured.

Therefore, gentlemen, I contend that cesarean section, as the doctor said, is indicated in the contracted pelvis, just a minor pelvis, where the disproportion of the passage to the passenger makes delivery impossible. But I do not believe, in the face of the figures that are shown by Karanoff and those shown by Dr. Williams of Baltimore, in a modification of this treatment. It is justifiable, however, where you can reduce the mortality. Karanoff reports 269 cases of eclampsia treated, with 2.4 per cent mortality. You cannot beat it.

Dr. H. R. Shands (Jackson): Five years ago I read a paper before the Obstetrical Section of the Southern Medical Association at New Orleans advocating the free and rather general use of cesarean section in the treatment of eclampsia in selected cases. It happened that there were four correlated papers so that when the discussion opened eight obstetricians discussed this paper before any surgeon got a chance to discuss it. Everyone was thoroughly against me; nobody said a word in my behalf. I was drugged, but not convinced. I have thought about this matter carefully since. I now stand before you with the names and addresses of seventy-eight patients who have been operated upon at the various hospitals in Jackson during the past six and one-half years for various reasons by cesarean section.

Forty-one of those cases had a serious pre-eclampsia toxemia. Two of those cases died—a mortality of less than four per cent.

I think Dr. Wall was referring to Stroganoff. He did report cases better than those reported from Europe. I have seen no rate lower than four per cent, which we have had in a limited number of cases. Of the forty-one cases on which cesarean sections were done, there were fifteen cases of bleeding at or near the full time, without any mortality whatever.

The only favorable comment at all in the discussion of my paper which I read, which was discussed by obstetricians, was made by Professor B. C. Hirst of the University of Pennsylvania, who said that he conceded the argument presented was all right, that it was a conclusion but it would not work. I now say that it will work if it would work in forty-one cases in the hospital at Jackson, cases which were not in my hands at all. It is working pretty well so far with us.

Until the last year, if you consult the literature as to the treatment of eclampsia, the consensus of opinion was overwhelmingly against the use of cesarean section. I want to read to you two paragraphs from a recent member of the New England Journal of Medicine. This is the Journal that took over, last year, the Boston Medical and Surgical Journal. This article is entitled "Progress in Obstetrics," by Dr. John Roff, who is a professor of obstetrics. This is what he says concerning the progress during the past twelve months in regard to eclampsia:

"From the great volume of publications concerning eclampsia, one fact stands clear: It can usually be prevented by intelligent pre-natal care. When the diagnosis of pre-eclampsia toxemia is made, the patient should be put to bed, given a low protein and low fat diet, with plenty of carbohydrates and milk and water. She should get free catharsis by means of magnesium sulphate. Glucose properly prepared and in proper dosages may well be given intravenously. It does no harm and may easily do a great deal of good.

"If such treatment is promptly followed by improvement so extensive that eclampsia is no longer threatened, the pregnancy need not be terminated; with clear recognition of the fact that if pre-eclamptic toxemia is allowed to continue for long, the pregnancy may terminate itself by fetal death or abruptio placentae. Neither is a creditable result.

"By extensive improvement is meant cessation of symptoms with a constant decrease of blood pressure at least to 140 m.m., and the practical disappearance of albumin from the urine. By a dangerously long time for true pre-eclamptic toxemia to be tolerated is meant a week.

"If, in spite of treatment, the disease progresses and the diagnosis pre-eclampsia is forced, the uterus should be emptied—the method of termin-

ating the pregnancy to be chosen with regard to the severity of the condition, the extent of the pregnancy, and hence the viability of the baby, the parity of the patient, and particularly the condition and nature of the cervix.

"If eclampsia appears, however, in spite of all, before the patient is delivered, what shall we do? Shall we deliver by cesarean section? J. W. Williams is for being conservative with Stroganoff; but DeLee of Chicago approves of section in selected cases in the proper hands; while Wilson of California, as well as Waldstein of Vienna, Llames-Massini of Buenos Aires, Stoechel of Berlin, and Freund also of Berlin are all in favor. In recent literature the "ayes" have it. There is an unmistakable trend, among obstetricians who write, towards surgery in the treatment of eclampsia. It must be remembered that their work is done in well equipped maternity clinics, usually after careful study of the patient, and not on the mere diagnosis of eclampsia.

"Unless we have good opportunities for specialized treatment, we should keep in mind Stroganoff's excellent results, for many eclamptics are safer with morphia and patience than they are if exposed to anything but the nicest surgery and its associated treatment."

I know that no discussion has ever been more officious than the discussion of those men who believe that the safest thing to do in the uncontracted cervix in a mother having convulsion is to deliver the woman.

I presented to you seventy-eight cases of cesarean section with three deaths, and forty-one cases of eclampsia with two deaths and a mortality of 4 per cent, and I now present to you the abstract of the discussion.

Dr. Joe E. Green (Richton): Gentlemen, we want to keep the records straight. Dr. Shands in discussion of this paper asked about cesarean section and whether or not it should be done; and it seems that eclampsia gives the strongest indication for cesarean section.

Who has eclampsia? Any mother who has the proper attention in our cities and towns hardly ever has eclampsia. We give plenty of salts and cream of tartar and calomel, and if you will do the same thing you are not going to have much eclampsia.

If it is a well selected case and gives a chance to operate, of course, have a cesarean section. Men, you had better watch your step. It is the desire of young men today (and I do not blame them) to do a cesarean section.

Not thirty days ago I was called seventeen miles into the country. When I got there I found a stout, seventeen-year-old, robust young lady, in labor. There I was. The devil of it was they did not have the money to pay me, but I had to stay with it. She told me she had been in a charity hospital. There are too many cesarean sections being done in charity hospitals. She told me that a young doctor had told her that she would have to have a cesarean section, and that when she got ready for the delivery he would do the cesarean section.

I did not do anything but sweat when I was not hot, but no longer than about three days ago I received a letter from that mother stating: "The boy and me is doing fine. I am enclosing you the final ten dollars, and now the baby belongs to us."

That is the trouble. I tell you right now that we had better watch out because there are too many cesarean sections done among the practice.

I will not criticize. The doctor has brought us a good paper on that thing and he has his limitations down fine. Certainly there are cases where it is indicated but remember who has eclampsia and remember the condition under which you find them, and remember where you have the care and be darned sure you know to whom you are taking the care.

Dr. T. B. Sellers (New Orleans): Dr. Shands said that a group of obstetricians jumped on him in New Orleans and I was one of them.

I must say that our statistics in New Orleans as brought out by Dr. Wall have demonstrated to the New Orleans Obstetrical and Gynecological Society, that eclampsia is not an indication for cesarean section. We have come to that conclusion every definitely.

There are certain existing conditions, such as a primipara, with a belt line pelvis, with eclampsia, in which a cesarean might be indicated; but eclampsia itself is a contraindication to abdominal section. From the emergency arising with this and with the border line pelvis, sometimes you are forced to do a section. Never do a section or any

kind of operative procedure on any case with active eclampsia until you get the patient under control. She is already shocked beyond words, so you must use glucose in your treatment and then your operative treatment must follow.

I believe there are too many cesarean sections done. Of course we know there are too many done from our standpoint, speaking from the abstetricians standpoint of eclampsia, but in other conditions, I believe there are too many cesarean sections done. If I were in an institution and there was a question of certain abnormal obstetrical procedure versus the cesarean section in a good surgeon's hands, I would rather take my chance with my wife with a cesarean rather than an inexperienced physician trying to deliver by mechanical means. That is no reflection on anyone, because we all have our specialties. It is a known fact that men are delivering with forceps in cases of virgins every day, but that is no reason to suppose that they are more dexterous with forceps. Dr. Potter is more dexterous in doing a version than anybody in the country, and under certain conditions I should be willing to have Dr. Potter try a version on one whom I would rather use other means.

I believe there is a happy medium and that we should try to strike that happy medium rather than to jump on these cases and do a section on all of them; or get on the other side of the fence and say that we are not going to do any more sections, that we are going to try to deliver them all.

The fetal mortality and maternal mortality in the experience of all the gynecologists and obstetricians in New Orleans has been much lower since we have put in this system, and we have asked the private institutions not to let anyone do a cesarean without consulting one or two gynecologists or obstetricians.

Dr. H. N. Mayes (New Albany): I wish to thank the doctors for the discussion.

The two cases I mentioned were treated in the hospital. We had consultations and decided that it was the best we could do for the patient. I guess we will have to meet the indications as they come up. We have used forceps in eclampsia. We had one case last year and the mother and child are both living.

I thank you all.

THE USE OF IODIZED OIL AS AN AID IN THE DIAGNOSIS AND ITS USE FOR TREATMENT IN CONDITIONS OF THE FEMALE GENITAL TRACT.*

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Until recently, clinical examination, histiologic and pathologic study of the tissues removed at operation were the only means of diagnosis in gynecology. Later the uterus was inflated by means of the vaginal route to determine obstruction of the tubes by Reuben. This opened a new field. Following this, sodium bromide followed by roentgen-ray was used for locating any obstruction and thus determining the best mode of treatment for curing the sterility. This was limited because of the disagreeable reaction.

Utero-salpingoraphy not only supplements the insufflation with gas, but frequently supplants it. In sterility, it not only informs us whether the tubes are patent or not, but also localizes the site of occlusion. Properly performed, the test outlines distinctness. More important, however, is the fact that there is apparent striking therapeutic results after the use of iodized oils by trans-uterine injection.

There is no question but that the cause of a very large percentage of all cases of sterility lies in the condition of the Fallopian tubes, and up to quite recently the Fallopian tubes, except at operations, have been a sealed book. Many women have been operated on needlesly for conditions which were frankly hopeless, and others have been refused operations which might have been helpful.

It is well to remember that although sterility is not vital in the sense that it threatens life, it is vital in the sense that it effects the happiness of the individual and of the family.

*Read before the Louisiana State Medical Society, New Orleans, April 9-11, 1929.

The peristaltic wave in the tube begins at the fimbria and passes toward the fundus occurring about 15 seconds apart and one at a time. It is easy to see how disturbed peristalsis even in a patent tube might result in the death of a fertilized ovum before uterine implantation could occur. The further the obstruction from the fimbria, the less hope that surgery will be successful. However, if near the fimbria, surgery may open a small chance for conception.

In 1914, Cary advocated a solution of collargal. Kennedy employed a 10 per cent solution of sodium bromide. Tussua and also Mocquot, in 1925, reported on the use of a suspension of bismuth. However, these solutions did not prove to be satisfactory. The most valuable work toward accomplishing roentgenological visualization of the female pelvic organs has been one with iodized oils, notably lipiodol and iodipin. In 1922, lipiodol, which is a 40 per cent combination of iodine wth poppy seed oil, found to be non-irritating to the most delicate tissues, was used for the localization of spinal cord tumors. This was done by Sicard and Forestier. Previously lipiodol had been used therapeutically intramuscularly for its iodine effects. It was accidentally noted after this that opaque spots continued on roentgen-ray examination for a long time. Lipiodol is not a solution of iodine and poppy seed oil, but a definite chemical combination of these substances. It is yellow and has the appearance of olive oil. Iodipin is a combination of iodine crystals (40 per cent) and a vegetable oil. (Sessame oil). Sicard and Forrestier gave more than 5000 injections of lipiodol in various parts of the body without unfavorable results. Following the spinal cord work, iodized preparations were used in the lungs and bronchial tubes. Being used successfully by Pritchard, Whyte and Gordon in 1925, Reverchon and Worms injected the maxillary sinus and Ballock injected the lacrimal ducts. The preparation is used for visualization of the pelvis, of the kidneys, ureter, bladder, and urethra.

Heuser of Buenos Aires, in 1925, was one of the first to employ iodized oils for gynecological diagnosis. Heuser injected iodized oil as a means in making an early diagnosis of pregnancy and found it was not injurious and did not induce abortion. On the contrary, it was ineffective when attempts were made to produce therapeutic abortion. His work has been followed by others, but so far I have seen no reports in this country. Heuser, in 1926, observed a salpingo-uterine sphincter action and a mucular contraction of the Fallopian tube by means of utero-salpingoraphy. Roentgenological pictures showed at the uterine cornu and in the cavity of the tube a space similar to the ring produced in the pylorus, followed by the cavity of the tube in the shape of an ampulla. This ring is encountered in a state of relaxation or contraction according to the phase in which it is observed. It is observed in the terminal portion of the uterine cavity, thus explaining why the fluids of this cavity are not readily transported to the pelvic cavity. This ring closes in some patients when the horn of the uterine cavity becomes contracted. This explains why, in the presence of uterine hemorrhage, the blood does not enter the peritoneal cavity, but escapes through the uterine cavity. Heuser's findings, therefore, show a salpingo-uterine sphincter and the muscular contractions of the tube extend to the uterine cavity. It also shows that iodized oil in the peritoneal cavity is absorbed by the tube through capillary attraction and expelled into the uterine cavity through muscular contractions. Where there are remnants of placenta, the sphincter remains open, in some cases thus accounting for an ascending infection. Remnants of the placenta in the uterine cavity produce in roentgenograms a deformity of the pictures of the cavity, because of the space occupied by these remnants. On fluoroscopic examinations of the uterine cavity

filled with iodized oil one may observe when the cavity is occupied by some foreign body, that muscular contractions occur as far back as the neck of the uterus. They may be slow or energetic.

The injection of iodized oil is valuable for diagnosis and localization of submucous and intramural uterine myomata and also of intraligamentous tumors. Reuben and Benedict, with iodized oil, described three types of peristaltic motion in the Fallopian tubes. Grossenbeck and Closse believe that with asceptic technique it is a faultless diagnostic measure even in ambulatory patients, but it is better to give it to patients in bed, and it is preferable they remain in bed for 24 hours. Many other workers have visualized the female tract by iodized injections. The technic is as follows: Asepsis is rigid. The patient receives an enema the night before and another one on the morning of the examination. She is allowed a light breakfast of toast, and is prepared as for vaginal examination. It is preferable to shave the external genitals and place leggins on the lower extremities. The patient is placed in lithotomy position, being placed on the table with a bucky diaphragm and nurses are present to support lower extremities. The patient is brought to the edge of the screen. A weighted speculum is placed in the vagina, and the cervix is grasped with vulcella. It is then cleared of mucous and swabbed with iodine, then washed with alcohol. The vagina is swabbed with alcohol. A sound is introduced into the uteral cavity to determine its direction, and everything is ready for the injection. I use a modified Ultzman-Keyes urethral nozzle, a rubber tip to occlude the cervix and prevent the escape fluid into the vagina, attached to the nozzle three or four c. m. from the end. The nozzle is inserted into the cervix as far as the rubber tip. A bayonet attachment fitted to the nozzle locks the attached syringe and aids the work. A Record or Luer syringe may be used. The iodized oil is warmed by placing the flask in hot water. This makes it less viscid and helps it flow. A 20 c.c. syringe is filled with about 15 c.c. of oil and locked to the nozzle. The weighted speculum is then removed. Patient is then pulled higher on the screen. The oil is injected slowly and steadily until 5 to 8 c.c. have been passed in. The roentgen-ray picture is then made. While the picture is being made, gently pull on the vulcella and at the same time press on the syringe so as to produce perfect closure of the os. It is well to place a small piece of gauze in the posterior commissure to prevent the possibility of oil flowing on the screen, as this would spoil the picture. After the picture has been taken, the instruments are removed from the uterus. If the tubes are patent, accumulation of the oil in the pelvis near and around the tubes will be seen. During the injection, some patient might complain of cramps, in such condition, it is well to stop the injection for a few seconds, and allow the patient to accommodate herself to the condition and continue the injection. Occasionally there is a feeling of faintness. It is well to stop the injection and assure the patient that nothing will occur. A bivalve speculum is not as good as the weighted speculum, but can be used. After a few hours, the patient feels none the worse from the examination, but it is best that she take at least a day's rest. In the cases I have injected, I have had no outward symptoms or effects. It will, therefore, be seen universally that intro-uterine injection of iodized oil is a harmless proceedure, if carefully performed, even not unfavorable in ambulatory cases. Symtoms of iodism have been reported after injection. This is very rare. None of my patients have shown iodism after the injection, and urine is always negative for iodin. Traces of oil may persist two weeks after the injection, although faint traces may persist for two months. When the osteum abdominale is closed, the iodized oil remains in the ampulatory portion of the Fallopian tubes. Very little absorp-

tion takes place through the walls of the tubes. Repeated roentgenograms of cases show that the tubes are first emptied and then refilled, indicating that there is a peristalsis in the tubes, and it is possible while the tube is clear at the osteum abdominale that the oil might be drained through the uterus. There is no evidence that the oil damages the epithleum in the tubes. If the cervix is not closed, the oil will flow into the vagina and produce deceptive shadows, in addition the flow of the oil from the uterus might result in the failure of the oil to enter the tubes. The pressure in the syringe should be steady, gently, and continuous. By means of roentgen-ray study after the injection, an accurate uterogram and salpingogram, visualizing the entire internal female genital tract may be obtained in which the Fallopian tubes are not occluded and if there is occlusion the location is determined, which gives information of value in the treatment of obstructive sterility, enabling one to decide as to the advisability of plastic surgery on the occluded tubes. When the oil escapes through the patent tubes it will distribute itself in the pelvis. It is readily understood that the injection should not be made in presence of acute infection, such as gonorrhea, because of the danger of the forcing the infection higher up. The patient is advised to return in 24 hours for another picture, to confirm the patency of the tubes. Oil must be demonstrated leaving the fimbriated end of the tube or found free in the pelvis to determine that the tube is open. This can be usually determined at the first picture by seeing oil droplets leaving fimbriated end of tube or being free in pelvis. The 24-hour picture is used to confirm this.

Sicard and Solal report a case of pelvic suppuration after an intra-uterine injection of iodized oil in a healthy woman, aged 30 years, who consulted a physician for sterility. Gynecological examination was negative. Iodized oil was injected, with all necessary precautions, two days before the time of menstruation. The uterus and tubes were apparently normal. Three days after the injection a swelling of the anterior fornix of the vagina was discovered, and eight days later the woman developed a severe pelvic suppuration, with high fever and bad general condition, which kept her bedridden for two months. In all cases the patient should be told about the possible danger of infection.

Jourcho has found the injection of iodized oil has therapeutic value in gynecological conditions. That the oil produces no injury in the peritoneal cavity, and since an oil capable of slowly liberating iodine could be injected so as to reach the peritoneal cavity without entailing serious consequences that use of this substance might possibly be attended with therapeutic advantages.

Little of Montreal injected at laparotomy after pus had been withdrawn from the exposed tube, one to three c.c. of 10 per cent spirits of turpentine in liquid parafin into the Fallopian tubes, then closed the abdomen without drainage. There were no outward effects and some of the patients subsequently gave birth to healthy children. This proceedure should be attempted only after acute symptoms had subsided. If the treatment of Little gives results, it is only reasonable to believe that an iodine liberating preparation that will enter Fallopian tubes after intra-uterine injection should also give favorable results, therefore it would be better to use this route in preference to laparotomy.

Dotte and Bertrand, in 1926, were perhaps the first to suggest the therapeutic use of iodized oils in gynecology. They observed at that time that lipiodol has a powerful antiseptic action and would destroy any micro-organism in the Fallopian tubes after intra-uterine injection. They never noted any rise in temperature or unfavorable reaction, due to the injection of the oil in the presence of the acute or sub-acute inflammation. They, therefore,

suggested that the injection of the oil might prove a useful therapeutic measure early in the course of salpingitis and that it might result in early recovery and prevent tubal obstruction.

Joachimovitis observed that in two cases of profuse leucorrhea and one of non-gonorrheal endometritis there was a marked diminution of the uterine discharge after two injections.

Pierre believes there is a favorable influence on pathological process in the Fallopian tubes. Jarcho uses a monometer attached to his syringe in order to inject the oil slowly and not produce a pressure over 30 to 40 millimeters using 4 to 5 c.c of iodized oil. If too much force is used there will be a spasm of the musculature of the uterus and Fallopian tubes producing severe pain.

As far as the use of lipiodol as an aid in the treatment of gynecological conditions, especially in leucorrhea, my results have been variable. However I believe I have had more favorable results than contrary. I have treated a number of specific and non-specific leucorrheas with lipiodol injections of 4 to 5 c.c. at 7 to 10 day intervals, and in some cases I have received very good results, and in others no benefit. If other pathological exist, we cannot expect results with this treatment.

I have used this treatment associated with the other usual treatment in children with specific vaginitis. Injecting the oil into the vagina daily, and keeping the child quiet for at least an hour after injection. I believe that my cases so treated have been of shorter duration, improved quicker, and discharge cleared sooner.

I have had two striking results in the treatment of apparently simple agglutinated tubes. One is a woman who had one child, forceps delivery, and apparently an infection following delivery. She was in bed one month with fever. She lost her baby and was anxious for another. She had been curretted, dilated and even a stem pessary introduced, and left in for three months, all with no avail. About two years ago, after the last surgery, I injected her with lipiodol, and both tubes were patent. She became pregnant immediately after injection, for she did not menstruate again until after delivery. She delivered a 9-pound boy in the usual time, and normal delivery. I had a second patient that had been married 7 years and never been pregnant, and following injection, she immediately became pregnant, and delivered an 8-pound girl in the usual time. I believe that the oil opened probably agglutinated tubes and paved the way for the pregnancies.

I have been able in a number of my cases to demonstrate the tubal-uterine sphincter, described by Heuser.

SUMMARY.

1. Consensus of opinion of the injection of iodized oil itno the female genital tract is entirely safe and harmless, and a valuable aid in making gynecological diagnosis.

2. Utero-salpingography gives a picture of conditions that may be found in the female genital tract.

3. It tells whether tubes are patent or not and localizes the sight of obstruction.

4. There is a definite sphincteric action at the uterine cornu.

5. Trans-uterine injections of iodized oil has definitely therapeutic advantages in sub-acute and chronic conditions of the Fallopian tubes.

6. In sterility cases where the tubes are affected, it is possible to locate and determine the character of the obstruction and indicate operability.

7. When several masses are palpable in the pelvis, it will differentiate the uterus from the other masses.

8. When the pelvis is blocked by one large mass, it can be found whether the tumor originated from the ovary or uterus.

9. In cases in which a foreign body is suspected in or on the outside of the uterine cavity.

10. In differentiating from chronic appendicitis and right salpingitis.

11. In indicating the size of the uterus, by determining whether the cavity is encroached upon by any mass, fibrinous or carcinoma.

12. The test is simple, but strict aseptic precaution must be taken.

13. There is a field for use of lipiodol in treatment of condition of female generative tract, especially leucorrheas, and I have had two remarkable results in apparently agglutinated tubes, pregnancy following its use.

REPORT OF CASES.

1. Mrs. W.; aged 32 years, married 9 years, had never been pregnant. She came to the office complaining of primary sterility. There was a history of an operation 10 years ago for appendicitis. A bimanual examination revealed the cervix in good condition. The os was open, the uterus pulled to the right, and adenexa not palpable. The uterine cavity was injected with 6 cc. of lipiodol, showing the triangle portion of the uterus pulled over to the right. The tubes were patent, and the oil dripped out of the osteum abdominale. Both tubes were tortuous. The left tube seemed to be the longer.

2. Mrs. F. C.; an Italian girl 24 years of age, married 4 years, came to the office with primary sterility. She had no discomforts, suffered at menstrual time. A bimanual examination revealed the uterus in normal position. The adenexa were not palpable. The uterus was injected with 7.5-cc. iodized oil. It showed from the picture that the canular had been passed well up into the uterus. The triangular portion of the cavity could easily be outlined. It was regular, and showed that the oil drained very slightly into the tubes. The tube was obstructed at the uterine junction and especially a small part of the right tube can not be noted at the right horn.

3. Mrs. A.; married 6 years, aged 28 years, reported to the office with a primary sterility. The cervix was anti-flexed. The uterus was in good position. The adenexa were not palpable. The canular was again shown well into the uterus, and 7 cc. of oil injected. The uterine-cavity was definitely made out, triangular in shape. The tubes were patent, and oil was leaking in the peritoneal cavity.

4. Mrs. W. D.; aged 24 years, married 6 years, reported with a primary sterility. The cervix was normal, os was patent. The uterus was apparently pulled to the right. Six cc. lipiodol was injected. Triangular cavity was well discerned. The uterus was pulled to the right. Both tubes were patent. There was free oil found in the peritoneal cavity.

5. Mrs. T. J.; aged 35 years, married about 16 years, gave a history of one full term delivery, 14 years ago. The child was living, but was a thyroid deficient. The patient had a rather severe time following the confinement, running temperature, and chills, and being in bed 6 weeks. She has had frequent trouble in the lower abdomen. She reported because of sterility, being very anxious to have another child. The uterine cavity was injected with 6 cc. of lipiodol. The left side was irregular. There was a lack of filling in the left wall. This was a small myoma and could be palpated by manual examination. The right tube was completely occluded. The left tube was opened for a small distance from the uterus, being also occluded. This patient was roentgen-rayed and injected three months later, and showed exactly the same thing. She showed a definite, very small irregular uterine-cavity.

6. Mrs. W. A.; this patient reported for a primary sterility. She had been married 12 years, and was 33 years of age. The patient was injected with 8 cc. of lipiodol. She complained of some cramps during the injection, so that the injection had to be stopped for a few minutes a d then continued. The uterine cavity showed irregular and at the fundus near tube there was a filling defect. A small myoma was palpable on bimanual examination. The tubes were occluded.

7. S. D.; aged 27 years, married 7 years. She had had full term pregnancy, 5 years ago. She had a very difficult instrumental delivery, but was out of bed in the usual time. Bimanual examination revealed nothing of note. Injection of the uterine-cavity of about 7 cc. lipiodol revealed the uterus to be in good position. The cavity was normal in shape, both tubes were patent, and some of the oil leaked into the pelvic cavity. The main feature in this case was that this woman was very anxious to have a second baby, since the loss of her first baby. After the

injection, this patient did not menstruate and delivered a baby a year ago. It appears that the oil opened up the tubes and allowed pregnancy to occur. She has had a second pregnancy, but miscarried, due to influenza.

8. Mrs. A, M.; married 2½ years, had never been pregnant. She was 24 years of age. History of acute rheumatic fever eight years ago. Reported to the office, complaining of primary sterility. Bimanual examination revealed the cervix normal, and the uterus slightly displaced to the left. Adnexa were not palpable. The uterus was injected with 7 cc. of lipiodol and showed the uterus to be triangular shape and pulled to the left. Both tubes were patent. The patient is now two months pregnant. Injection made 6 months ago.

9. Mrs. A. R. B.; aged 28 years, married 9 years, had never been pregnant and desired to be so. Manual examination showed the uterus pulled to the left. Adnexa were not palpable, and a small uterine myoma felt on the right side. The uterus was injected with 7 cc. of lipiodol and showed the uterus to be triangular shape and an indentation due to a myoma present. Both tubes were patent, and both cornuals sphincters were visible. The patient became pregnant two weeks after the treatment, and delivered a 9-lb. girl in the prescribed time.

10. Mrs. T. W. D.; aged 28 years, married 7 years, had never had children. Bimanual examination revealed the uterus displaced to the left and a mass on the right side was felt, apparently the right tube. The uterus was injected with 8 cc. lipiodol and a normal triangular uterus displaced to the left was seen. The left tube was twisted and turned upward and the right tube was much enlarged and adhered to the uterus.

11. Mrs. V.; aged 33 years, married 9 years, had never been pregnant. Bimanual examination revealed nothing of note. The uterus was injected with 7 cc. lipiodol. Both tubes were patent.

12. Mrs. L. C.; aged 30 years, married 10 years, never had children. Operated on 6 years ago. Bimanual examination showed nothing of note. The uterus was injected with 7 cc. lipiodol. The left tube was patent, and the uterus was normal in position and shape. The right tube was occluded about the middle half. The half of the tube was removed at operation. Uterus ante-flexed. Injection one year ago, patient now pregnant.

13. Mrs. V. L.; aged 29 years, married 11 years, no children. Suffered severely with dysmenorrhea. History of several curretments. Bimanual examination showed the uterus pulled to the right. The uterus was injected with 8 cc. lipiodol and there appeared a normal uterus in size and shape, pulled to right and ante-flexed. There appeared to be double tubes on each side. One tube on the right was adhered to the wall of the uterus.

14. Mrs. McG.; patient was 27 years old, married 2 years. She had never been pregnant. On vaginal examination the uterus was ante-flexed, no masses palpable. Seven and a half cc. lipiodol were injected. Both tubes were patent, and the uterus ante-flexed.

15. Mrs. W.; aged 28 years, married 2½ years, never been pregnant. Bimanual examination revealed the uterus in good position, but slightly enlarged. Eight cc. lipiodol were injected. The uterus was in normal position, somewhat enlarged. Both tubes were patent. Right tube rather long.

16. Mrs. J. L.; aged 29 years, married 5 years. One pregnancy, 4 years ago. Had not been pregnant since. History of gonorrhea in husband 2 years ago. Bimanual examination showed uterus fixed and tender, adnexa not palpable. Seven and one-half cc. lipiodol injected. Both tubes occluded. The right tube was occluded at the uterine end, the left at the fimbriated end. This patient operated on recently. Bilateral salpingitis. Both tubes removed.

17. Mrs. A. V. L.; 30 years of age, married 6 years, no pregnancies. Rather obese, menstruated scantily and irregularly. Bimanual examination showed the uterus normal in size and shape. Adnexa negative. Eight cc. lipiodol injected, uterus triangular, normal position. Both tubes were patent. Right tube was adherent and the fimbriated end was distended.

18. Mrs. F. K. G.; aged 32 years, had never been pregnant. Bimanual examination showed the uterus normal in size and shape. Adnexa were not palpable. Eight and one-half cc. lipiodol injected. Both tubes patent. Uterus normal in position and shape.

19. Mrs. D. R. A.; aged 34 years, married 7 years, pregnant 5 years ago. Miscarried at 4½ months. Never pregnant since. Bimanual examination showed uterus ante-flexed. Adnexa were negative. Ten cc. lipiodol injected. Both tubes patent. Uterus was ante-flexed. Ampulla of both tubes were distended with much free lipiodol in the peritoneal cavity.

20. Mrs. F. S.; aged 27 years, married 4 years, never pregnant. Bimanual examination

revealed uterus normal in position. Adnexa were negative. Eight cc. lipiodol injected. Both tubes patent and uterus normal in position and shape.

21. Mrs. M. P.; age 28 years, had miscarried twice. Had had two currettments. One surgeon advised that she had a septate uterus. About 8 cc. lipiodol injected. Showed a double uterus. Both tubes patent.

22. Mrs. A. B.; aged 26 years, married 4 years, never pregnant. Bimanual examination showed the uterus normal in position. Adnexa negative. Seven and one-half cc. lipiodol injected. Uterus normal in position. Both tubes patent.

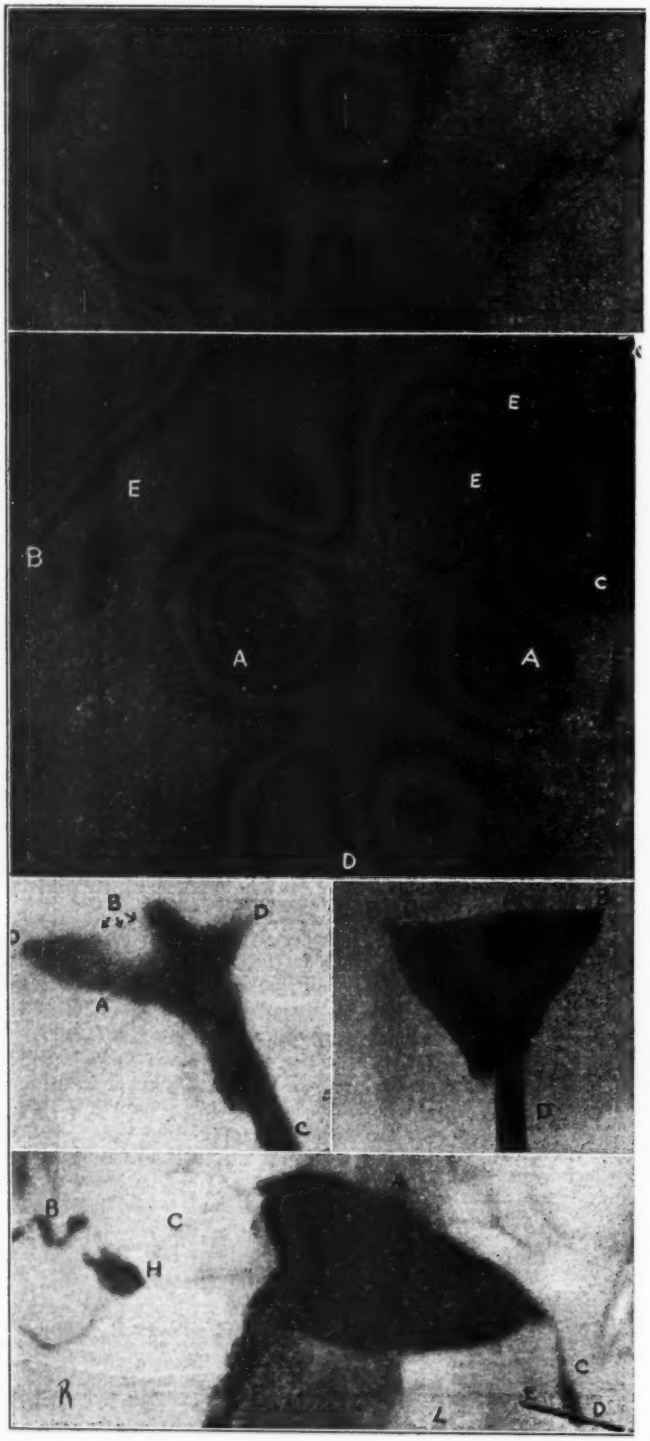
DISCUSSION.

Dr. John F. Dicks (New Orleans): Iodized oil has one definite use in gynecology, the diagnosis of patency of the tubes, and it is unfortunate, to my mind, that the essayist included so much in his paper that this consideration may have been clouded over. It may result in pregnancy, in one or two instances in my own experience possibly it did, but that is not its chief concern. In my own work I feel that the diagnosis is not complete until a twenty-four hour picture has been made, to be certain that the oil either is or is not in the pelvis. Seventy per cent of tubal pathology is located at the fimbriated extremity, and the fact that oil is in the tubes does not settle the question of whether or not a woman can conceive; we have to know also whether it can get out of them. I was obliged to make a hurried diagnosis the other day on an immediate picture, which seemed to show patent tubes; twenty-four hours later I had to change my opinion, because the oil had not left the tubes. This method may assist in the diagnosis of fibroids, ovarian cysts and other pelvic conditions, but we do not need it in them. The experienced gynecologist can detect these types of pathology without any such aid. We ought to be rather cautious in advocating the general use of this method, because it is certainly going to be abused. I have in mind particularly a paper read before this section last year in which the method was advocated to diagnose pregnancy. It should be absolutely condemned for any such purpose. Nothing at all should be introduced into the uterus suspected of pregnancy. The oil should never be injected under pressure; it spreads rapidly of itself by continuity of surface, and the use of pressure is dangerous and ill-advised.

Dr. W. E. Levy (New Orleans): The use of the twenty-four hour picture should be routine; no diagnosis can be complete without it. And this society should go on record against the use of lipiodol in the diagnosis of pregnancy; about 80 per cent of abortions follow its employment, and our seeming advocacy of it may give some unscrupulous man a cue. The Becton Dickenson Company are now putting out an apparatus with a manometer for controlling the pressure of the injection, which I think will be very useful.

Dr. Hilliard E. Miller (New Orleans): In 1926 I reported 40 cases in which I had used lipiodol, and I agree with Dr. Dicks that its use should be restricted to the diagnosis of the patency of the tubes. It may demonstrate other conditions, it may be a therapeutic agent, but just now its principal use is the diagnosis of tubal patency. In the cases mentioned, in 3 instances I injected patients with definite chronic salpingitis the afternoon prior to operation and I was able to demonstrate at operation exactly what the roentgen-ray had shown. The 24-hour picture is an important consideration; the immediate picture can be very deceptive. This method is a tremendous advance over the Rubin and similar tests, for it tells us not only that the tubes are blocked but where they are blocked. Thus it gives us an idea as to whether surgery is warranted. If the occlusion is near the fimbria, salpingostomy may be done with some hope of success, if it is near the cornua, the operation is not likely to succeed. When conception results following its use, I am not sure that the lipiodol has anything to do with it; I have seen conception follow the mere introduction of a sound to determine the direction of the canal. Lipiodol injection should not be used indiscriminately; its chief purpose is to demonstrate the patency of the tubes, and whatever else it demonstrates—and in one of my cases it demonstrated a polypoid endometritis—is incidental.

Dr. W. L. Bendel (closing): In all of the pictures referred to by Dr. Dicks, he will find that globules of oil have already passed into the pelvis, which settles the question of the patency of the tubes without a 24-hour picture. Of course if this does not occur in the immediate picture, we ask our patients to return for 24-hour examination. The main point I wanted to bring out was the usefulness of iodized oil in determining the patency of the tubes, but I believe it has other uses also. I was not advocating Heuser's employment of it in the diagnosis of pregnancy, although there may be some virtue in it. Disagreeing with Dr. Miller, that pregnancy following its use is not attributable to it, I have seen it happen in at least two instances, and one, patient had been curetted and submitted to other measures of treatment without any results. She did not menstruate after her injection, and I think this was a clear instance of cause and effect. I am sorry the time was so short that more discussion could not be brought out.



The topmost illustration is a roentgenogram of Case No. 13. Apparently double Fallopian tubes on both sides.

The next illustration is from Case No. 21, Mrs. P., showing a double uterus.

In these two illustrations the letter A stands for uterus, B—ampulla; C — Fallopian tubes; D—adherent right tube to uterus; E—free oil in peritoneal cavity; and F — bi-valve speculum.

The next two illustrations illustrate, on the left, Case No. 6, Mrs. W. A., showing occluded tubes and a small myoma. A is the uterus; B — myoma (filling defect); C—cannula; D—occlusion of the tubes.

The illustration on the right is Case No. 2, Mrs. F. C., showing occlusion of both tubes at uterine coruna. A — uterus; B—occlusion of tubes; C—salpingo-uterine sphincter; D—cannula.

The bottom illustration is from Case No. 12, Mrs. L. C., showing patent right tube and occluded left tube at the middle of the isthmus, the outer half having been removed in operation. A—uterus; B — ampula; C — isthmus of tube; D — occluded end of tube; E—scratch defect in plate; F—cannla; G—rubber tip in cannula; and H—free oil in peritoneal cavity.

Topmost illustration is Case No. 1, Mrs. W., showing utero-sulpingoram of uterus and tubes, both tubes being patent. A—triangular shadow of the uterus; B — ampula; C — isthmus of tubes; D—droplets of free iodized oil in peritoneal cavity; E — cannula; F — bivalve speculum.

Middle illustration is Case No. 22, Mrs. A. B., utero-salpingogram of normal genital organs. A—uterus; B — ampula; C — isthmus of tube; D—cannula; E—free iodized oil in peritoneal cavity.

The bottom illustration is Case No. 19, Mrs. D. R. A., illustrating sharp anteflexion of uterus with a distended ampula. The lettering for this illustration is practically the same as the others on this page except that F stands for the rubber tip in cannula.

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GINGER PARALYSIS.

During the past few weeks considerable discussion has arisen among the physicians of Mississippi, and to a lesser degree, among the Louisiana profession where the disease has not occurred in such large numbers as in the sister State, as to the etiologic agent responsible for a peculiar type of paralysis epidemic in certain communities. This particular disorder is characterized by the following salient features: It is relatively rapid in onset, weakness of the lower leg appearing one day and then day by day extending centrally; it is associated with pain, at times quite severe; the pain is not referred and not definitely related to nerve distribution; tenderness is present over the affected area; the weakness of the lower limbs is bilateral and symmetrical; it is progressive so that at the height of the course, walking is extremely difficult; there is a well marked foot-drop with loss of Achilles tendon reflex; the patellar reflexes are diminished but there are no alterations in the other deep reflexes, including those of the bladder and rectum; Romberg is positive but Babinski and other pyramidal tract reflexes are unaffected. The upper extremities only rarely are attacked and then but slightly. There is no evidence of a constitutional reaction at the onset, although in the one instance in which a leukocyte count was made, the cells totaled 16,000. Lastly, and this observation is most intriguing, almost all patients give a history of having drunk Jamaica ginger to excess. As a result of this usually recited tale, the newspapers of the country particularly, and the medical profession to a lesser degree have become greatly agitated about the possibility of the ginger in the extract causing the neuritis. Unfortunately for this hypothesis, the disease has occurred in children and in one physician who has never touched ginger in his life and does not use alcohol, another possible etiologic agent.

Epidemicologically the disease would seem to be an infection as it has spread from place to place. From this point of view and from the positive definite absence of any history of drinking ginger or alcohol in several instances it would seem that ginger can not be incriminated as the etiologic agent, rather it is very much more likely that some vague infectious agent is responsible for the disease, producing an infection which may be allied to, or even, poliomyelitis. The inbibition of ginger may be a coincidence, or its alcoholic content may produce such general immunilogic changes as to favor the propagation and growth of the organism in the individual.

The large number of cases reported in several states would indicate prompt investigation procedures by the United States Public Health Service.

TEST FOR PREGNANCY.

The need and the importance of a satisfactory method of diagnosing pregnancy is so obvious that it does not have to be recounted. Physicians for many years have been endeavoring to develop some method, presumably a laboratory test, whereby the presence or absence of pregnancy may be determined. The Abderhalden technic is the most recent of such tests, but after being employed by numerous physicians at the expense of much time and labor it has been found wanting.

About two years ago two German observers, Zondek and Ascheim, brought out a test which from a recent report would seem to be thoroughly confirmed. The technic of the test is relatively simple, but could not be carried out by the ordinary practitioner. On the other hand, any good clinical laboratory man could learn the test and would have facilities for its application. The technic requires a collection of the morning specimen of urine, which is injected into five or more mice, each mouse receiving six injections in about a period of 48 hours. The mice are killed on the morning of the fifth day and their ovaries and uteri are examined. The positive test is indicated by the presence of corpora hemorrhagica or corpora lutea in the ovaries.

The tests seem to depend upon presence of a hormone in the urine. This hormone is not estrin, which Veler and Doisy have shown is present regularly in the urine of a pregnant woman. The original authors attribute the change produced in the ovaries to the hormone of the anterior lobe of the pituitary. Unlike the test which depends upon the presence of the estrous producing hormone in the urine, this particular reaction is positive early in pregnancy. In a report of the two English investigators,* one of whom is a full time worker for the Medical Research Council, 237 specimens of urine were examined, 126 were from women definitely known to be pregnant, and the test was positive in 122, the percentage of error being 3.2. Urine of 88 normal individuals was used as controls, and only one of these gave a positive test, percentage of error being 1.2. The hormone disappeared rapidly from the urine after delivery. In their conclusion the authors state that the results show that in the human subject tests may be carried out with some confidence, the percentage of error being low for any reaction. It would seem that they are extremely conservative in their estimation in the test, and that it could be relied upon with a great deal of confidence if the percentage of error is as small as they have recorded in their report.

*Allan, H., and Dickens, F.: Lancet, Jan. 4, 1930, p. 39.

THE UNITED STATES PUBLIC HEALTH SERVICE.

The varigated and multitudinous number of duties that fall to the lot of the surgeons of the United States Public Health Service are well illustrated by a recent bulletin by Surgeon General Cumming. The service cooperates and works in conjunction with practically every governmental department in the United States. Its activities in relation to the Department of State lie in the examination of intended immigrants, the issuing of bills of health to the American Counsels and the caring for destitute seamen returning from abroad. Its main duties are under the Treasury Department, but with the Department of Justice, among other functions, the Public Health Surgeon makes sanitary surveys of the water and sewerage system of the Federal penal institutions. The service provides the Post Office Department physical examinations of the prospective and actual employees and innoculates them against typhoid and smallpox. In the Interior Department the Public Health Service cooperates with the office of Indian affairs, investigates water and sewerage systems in the lands under control of this department, makes physical examinations for the Bureau of Pensions

and conducts a venereal clinic at Hot Springs. With the Department of Agriculture it has many correlated activities, including the enforcement of the Pure Food Laws. For the Department of Commerce the Public Health Surgeons practically take entire charge of the medical service to the boats and light houses under its control. To the Department of Labor it supplies examiners to determine the fitness of immigrants landing in this country. In addition to these offices for the departmental forces, the Public Health Service works with all the States of the Union in the collection of reports of the prevalence of diseases and epidemiological data in relation to the communicable diseases, as well as in a host of less important other health matters. It cooperates also with a number of societies engaged in public health activities, such as the Red Cross, the Rockefeller Foundation, the American Public Health Association, and the Illuminating Engineering Society.

This brief survey of the functions of this particular health agency of the United States Government indicates very definitely the extremely broad scope of public health activities in which it is engaged, and the catholicy of the duties that may fall to the individual surgeon in the employ of the government.

A few of these activities are known to the general public and many to the medical profession. Were it possible to enumerate all that the service does it undoubtedly would cause wonderment and amazement that there should be so much for it to do.

HOSPITAL STAFF TRANSACTIONS

VICKSBURG SANITARIUM AND CRAWFORD STREET HOSPITAL—STAFF MEETING

MARCH 10, 1930.

Abstract—Sarcoma of the Ovary.—Dr. H. H. Johnston.

Patient—White, female, aged 40 years, housewife, one child, aged 15 years. Admitted to hospital January 4, 1930.

Chief Complaint—Low back pain and cough.

Present Illness—Began nine months ago with dull aching continuous pain in lower part of back. Pain has increased in intensity and three weeks before admission began to radiate to lower abdomen. It was then that she noticed a mass in the abdomen for the first time. Several days later she developed a dry unproductive cough with slight pain in right lower chest, accompanied by dyspnea, nausea and loss of appetite. During the past week has experienced sensation of pressure on bladder with desire to urinate but has had no other genito-urinary symptoms.

Past History—Scarlatina and measles during childhood. Diphtheria fifteen years ago. Menstrual periods have always been normal both as to duration and cycle; no dysmenorrhea; last period three weeks ago.

Family History—Father died at age 59 of "heart disease." Mother died at age 63 of carcinoma of breasts. Two sisters living and well.

Physical Examination—Temperature 99.2°F.; pulse 90. Fairly well developed but slightly emaciated, with evidence of recent loss of weight. Over right chest posteriorly there is dullness on percussion, decreased fremitus and distant breath sounds. There is sharp tenderness over right lower abdominal quadrant. A palpable tumor extends from pelvis half way between symphysis and umbilicus. Pelvic examination shows a large smooth, firm mass, apparently behind what seems to be a normal fundus. Physical examination otherwise not remarkable.

Blood: Hemoglobin 62 per cent; erythrocytes 4,672,000; color index 0.6; leukocytes 10,600; diffrential leukocyte count: small lymphocytes 32; large mononuclears 3, polymorph. neutrophils 64; polymorph. eosinophils 1. Wassermann and Kahn tests negative.

Urine—Not remarkable.

Roentgen-ray examination of thorax showed homogeneous increased density over entire right side.

Procedure—Patient was treated palliatively until January 22, when about 800 cc. of amber colored fluid were withdrawn from the right lower chest. Laboratory examination of the fluid showed: specific gravity, 1.017; albumin, 4-plus; cell count 1.520; differential leukocyte count: small mononuclears 41; large mononuclears 27; polymorphonuclear neutrophils 29; polymorphonuclear easinophils 3; no tubercle bacilli or other organisms found; cultures negative.

The next day thirty minutes of deep therapy were given over right thorax, followed by thirty minutes over anterior abdomen on January 24. One week later clinical examination and roentgen-ray revealed reaccumulation of fluid in the right lower chest and on February 1, approximately the same amount of amber fluid was withdrawn. Laboratory examination showed cell count 834; other findings practically the same as on first fluid withdrawn. Thirty minutes of deep therapy was repeated the next day over right chest.

Temperature gradually subsided and on February 18, laparatomy was done. Through a midline incision, peritoneum was opened and a large amount of amber colored fluid escaped. A large firm growth, about the size of a grapefruit, from right ovary, was found. Ovary was mobilized and delivered but there was considerable hemorrhage from the posterior surface of the broad ligament where the growth was firmly adherent. Ovary and tumor and tube were removed and wound closed without drainage.

Pathological examination showed large round cell sarcoma of the ovary, tube and broad ligament.

Patient was temporarily shocked from the procedure. Blood transfusion of 600 cc. was given following operation. Improvement in general condition was immediate and convalescence was normal until March 1 when patient began having low left lumbar pain. Cystoscopic examination was done on the following day and a diagnosis of hydronephrosis of the left kidney was made. This was thought probably due to the fact that the growth extending into the broad ligament had produced pressure on the ureter. Urine from the catheter of the left pelvis showed on culture gram positive staphylococcus albus.

On March 3, thirty minutes of deep therapy were again given over the right chest and six days later thirty minutes over the entire chest. Since that time the symptoms have entirely disappeared and there are no areas of increased density on roentgen-ray examinations.

There has been no recurrence of abdominal symptoms and no evidence of re-accumulation of fluid as yet but on account of the nature of the growth with evidence of metastases, the ultimate outlook is not favorable.

Abstract—Carcinoma of the Thyroid.—Dr. J. A. K. Birchett, Jr.

Patient—White female, aged 38 years, housewife, no children, no miscarriages.

Chief Complaint—Swelling in neck, sense of pressure on windpipe, and difficult swallowing.

Previous History—Seven years ago noticed a small lump in throat which gradually increased in size. In the last six months has noticed that it has grown much larger and in the last three months has had a sense of something pressing in the throat, with choking sensation. Voice has become hoarse at times in the last two months.

Never had any severe illness; occasional attacks of malaria; bronchitis last winter; no history of cardiac disease. No history of gastro-intestinal disorder except suffers with constipation. No respiratory disease except bronchitis last year; has choking sensation now. Menstruates five to seven days with many clots; some cramping. Urinary history negative; no tuberculosis; no cancer.

Family History—Not remarkable.

Physical Examination—Well developed and nourished, apparently in good health. Temperature 98°F; pulse 88; respiration 18; blood pressure 140/90. Teeth in good condition. Tonsils large, hypertrophic, no pus in crypts. Neck shows large mass, size of a large lemon, in right lobe of thyroid, movable; left lobe enlarged but no lumps felt. Some deviation of trachea to left. No toxic symptoms, no tremor, no tachycardia, no exophthalmos. Heart and lungs not remarkable. Abdomen shows large mass in supra-pubic region, movable; no areas of tenderness. Pelvic examination shows cervix pushed upward; slight endotrachelitis with leucorrhea; vaginal

vault firm due to pressure of large sub-serous type fibroid uterus. Reflexes negative. Skin normal.

Procedure—A diagnosis of simple adenoma of the thyroid was made, the patient's discomfort on breathing and swallowing being due to pressure and displacement of trachea and oesophagus. Operation was advised for relief.

Under local anaesthesia, gland was exposed. The right lobe was made up of a firm mass which was easily dissected from the surrounding structures, it being a little more adherent at the superior pole, and for this reason, most of the superior pole of the gland was removed with it. Approximately three-fourths of the left lobe was taken. There was no great amount of bleeding, operation was well borne, and patient began to breathe freer as soon as isthmus and cystic mass was removed. Patient was discharged on the sixth day with wound well healed. Malignancy was not suspected.
Pathological report—Adeno-carcinoma of right lobe.

Comment—The frequency of carcinoma of the thyroid according to Balfour is 1.19 per cent; according to Simpson 4. Death results in 50 per cent of cases. Carcinoma is more common than sarcoma. The simple colloid goitre is usually the type that undergoes malignant change and gives metastases. Diagnosis is generally made on the finding of a large symptomless goitre present from twenty to forty years, that has recently began to develop in size. All hard tumors of the neck in the region of the thyroid s' uld be removed. Cancer of the thyroid generally occurs in patients over fifty years. In cancer there is usually loss of weight; fixation of growth; growths are hard (30 per cent of hard growths are malignant); discomfort in breathing is due to nodules pressing on trachea; discomfort in swallowing is twice as common in malignant conditions than in benign growths; hoarseness is present in large benign growths but when present with small growths that are nodular it is another point in favor of malignancy. Immediate results of treatment are good. No radical operation should be performed after it is known that metastases have occurred. Radium may well be employed. In young adults all nodular growths of the thyroid should be removed early, especially if there is hoarseness. Extensive radical operations are not justified as the post operative use of radium gives good results. Many benign appearing goitres may be malignant so early positive diagnosis is advisable and is obtainable only by operation.

Abstract—Femoral Arterial Perivascular Sympathetic Neurectomy for Obliterating Endarteritis with Threatened Gangrene.—Dr. A. Street.

Patient—White, male, Jewish descent, born in Poland; came to United States at age of seven years; aged 52 years.

Complaint—Painful left foot, worse at night, present for past two months. The foot is cold most of the time. General health is good.

Previous History—In 1925, the right leg was amputated for a similar condition. No venereal diseases; no typhoid fever, diphtheria or scarlet fever. No history of similar disease in family.

Examination—Temperature 98°F; pulse 76; blood pressure, systolic 138, diastolic 80. Pupils are equal and react to light. Knee jerk is present on the left. Lymph glands are not palpable. The general examination shows nothing remarkable. The patient does not appear ill.

The left foot is cyanotic. The toes are very dark, the second one more so than the others and shows a spot of gangrene at the tip, one-fourth inch in diameter. There is very slight edema. The toes are tender. The skin feels cold on palpation. The cyanosis partially disappears on elevating the foot. The dorsalis pedis pulse is not discernable. The popliteal pulse is present.

Urine and blood examinations, including blood Wassermann and Kahn tests showed nothing abnormal.

Procedure—Operation on February 14, 1930. The femoral artery was exposed in Scarpa's triangle. The adventitia was carefully dissected away from a segment two inches long. One blade of pointed scissors was then introduced under the margin of the adventitia below the denuded area and a longitudinal incision made. The same was done above. In making the upper incision, a small puncture was made in the artery. This was easily closed by suture.

Subsequent—The pain in the foot has been absent since the operation and the foot has been warm. There is still discoloration but not so marked as before. The gangrenous plug of tissue has not come away yet. However, the tissue surrounding this area looks healthy and it will be interesting to see if the ulcer will heal.

Comment—This operation was given prominence by Leriche of Lyons, France. It was first designed to relieve spasmodic conditions of the blood vessels, such as the Raynaud type of disease. Experience has shown that the procedure may also be of benefit in cases which belong to the same group as Raynaud's disease; but which have continuous symptoms instead of intermittent ones. Bernheim of Baltimore has obtained encouraging results with this operation. Adson of the Mayo Clinic has done lumbar sympathetic ganglionectomy along with removal of the adventitia of a segment of the iliac artery for the Raynaud type of disease, also with encouraging results.

TRANSACTIONS OF THE CHARITY HOSPITAL SURGICAL STAFF

The regular monthly meeting of the staff was held on February 19 last. A motion was passed that each man whose case was going to be presented at the meeting be requested to read the synopsis of his own case. It was accepted, and the deaths discussed in the future will be handled in this manner.

The Committee on Tetanus Antitoxin, consisting of Dr. H. B. Gessner, Chairman, Dr. Emmett Irwin, and Dr. Alton Oschner, made its report to the section. They drew up a synopsis of suggestions which might be followed in using tetanus antitoxin. Among them was that tetanus antitoxin should be administered to all Accident Room cases presenting open wounds. They suggested, in addition, that an attempt be made to determine the patient's sensitiveness to the serum, and outlined the method recommended by McKenzie & Hanger as the one of preference. Prophylactic care was stressed in the treatment of tetanus cases, and the matter of debridement was the first to be stressed. The Committee recommended that the rules governing prophylaxis be framed and hung in the Accident Room. The Committee finally advised and recommended that all cases of tetanus be isolated and the treatment supervised by the tetanus committee in order that a more efficient and complete study might be made.

Following this Dr. Amos Graves presented a statistical review of the cases treated in the hospital during the past six years. Dr. Emile Bloch stressed the importance of large doses of tetanus anti-toxin at the beginning rather than small doses at intervals throughout the treatment of a case of tetanus.

The next presentation was a rather synoptic discussion by Dr. Paul McIlhenny on the "Treatment of Acute Surgical Inflammatory Conditions of the Joints." This presentation was very adequately discussed by Drs. Fenner and Danna. Dr. Fenner laid emphasis on opening the synovial cavity and suturing the membrane to the skin in cases of pus in a joint, while Dr. Danna advised that he had obtained good results by simple aspiration and the reinjection of air.

The synopsis of the first death discussed was read by Dr. Loria. The case was that of a boy 13 years of age who died following a fulminating attack of acute osteomyelitis complicated by septicemia. This case had been heroically treated, but the patient was almost moribund on admission. Positive blood cultures with many organisms were obtained, and autopsy demonstrated a number of abscesses in the liver and kidney, with infarcts in the lungs.

The synopsis of case No. 2 was presented by Dr. Jerome Landry. This patient was a negro male, 39 years of age, who had suffered with pain in the epigastrium over a period of several months. Operation revealed a small abscess, the result of an old ruptured peptic ulcer. Gastroenterostomy was done and the patient died 12 days following operation.

FRANK L. LORIA, M. D.

TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

CALENDAR.

April 3. Pathological Conference, Hotel Dieu, 10-11 A. M.
April 4. Physiology Seminar, Tulane University, 5 P. M.
April 7. Eye, Ear, Nose and Throat Hospital Staff, 8 P. M.
April 8. Baptist Hospital Staff, 8 P. M.
April 9. Touro Infirmary Staff, 8 P. M.
April 10. Pathological Conference, Hotel Dieu, 10-11 A. M.
April 11. Physiology Seminar, Tulane University, 5 P. M.
April 11. French Hospital Staff, 8 P. M.
April 11. Medical Reserve Corps Branch School, 8 P. M.
April 14. *Orleans Parish Medical Society.* First Quarterly Executive Meeting.
April 15. Charity Hospital Medical Section, 8 P. M.
April 16. Charity Hospital Surgical Section, 8 P. M.
April 17. Pathological Conference, Hotel Dieu, 10-11 A. M.
April 17. I. C. R. R. Hospital Staff, 12 Noon.
April 17. Eye, Ear, Nose and Throat Club, 8 P. M.
April 18. Physiology Seminar, Tulane University, 8 P. M.
April 18. *Special Meeting, Orleans Parish Medical Society.* Dr. Chas. L. Scudder of Boston to be guest of evening.
April 18. Mercy Hospital Staff, 8 P. M.
April 21. Hotel Dieu Staff, 8 P. M.
April 24. Pathological Conference, Hotel Dieu, 10-11 A. M.
April 25. Physiology Seminar, Tulane University, 5 P. M.
April 25. Medical Reserve Corps Branch School, 8 P. M.
April 28. *Orleans Parish Medical Society.*

SECRETARY'S REPORT.

During the month of March the Society held two meetings. March 10, a regular scientific meeting was held and the following program was presented:

SYMPOSIUM ON PULMONARY TUBERCULOSIS.

X-Ray and Pulmonary Tuberculosis.
By:.....Dr. Leon J. Menville

Recent Methods and Treatment of Pulmonary Tuberculosis.
By:.....Dr. Chaillé Jamison

Surgery of Pulmonary Tuberculosis.
By:.....Dr. I. M. Gage
(Dr. Gage being ill, Dr. Ochsner presented paper)

Discussed by: Drs. Wallace J. Durel, D. L. Watson, E. A. Bertucci and L. C. Chamberlain.

On Monday, March 24, a joint Clinical Meeting with the Orleans Parish Medical Society and the Charity Hospital Staff was held in the Miles Amphitheatre. At this meeting a number of physicians from Southeast Alabama were the guests of the Society. Very interesting cases were presented and discussed by the members and guests.

Both meetings were well attended.

At the meeting held Monday, March 10, Dr. Ernest Sidney Lewis was elected to Honorary Membership.

It is with regret that we report the death of one of our active members, Dr. Sara Tew Mayor.

TREASURER'S REPORT.

Actual Book Balance, January 31, 1930....	$1,963.74
Receipts:	$3,486.15
	$5,449.89
Expenditures:	$2,445.68
Actual Book Balance: Feb. 28, 1930....	$3,004.21

LIBRARIAN'S REPORT.

During February, 101 books have been added to the Library. Of these 42 have been received by gift, 42 by binding, 11 from the New Orleans Medical and Surgical Journal and 6 by purchase. New titles of recent date are listed below.

We wish to call particular attention to the New Oxford Monographs of Diagnosis and treatment, purchased this month. Six volumes are already published and the system is highly recommended to the profession.

NEW BOOKS.

Oxford Monographs of Diagnosis and Treatment. v. 1-6. 1930.
Hay—The Neck. 1930.
Snyder—Blood Grouping. 1929.
Goldbacher—Hemorrhoids. 1930.
U. S. Army—Laboratory Methods. 1929.
Liddell—Mammallian Physiology. 1929.
Christopher—Minor Surgery. 1929.
Sansum—Treatment of Diabetes Mellitus. 1929.
Rolleston—Right Honorable Sir Thomas Clifford Allbute. 1929.
Daukes—Medical Museum. 1930.
Billings—General Medicine. 1929.
U. S. Army—Index-Catalog Series 3. v. 8. 1929.
Norris & Landis—Diseases of the Chest. 1929.
Jones—Orthopedic Surgery. 1929.
Central States Pediatric Society Transactions. 1929.
Rockefeller Foundation—Report. 1928.
N. Y. State—Report of Craig Colony. 1929.
O'Brien—Bibliography on Relation of Clothing to Health. 1929.

H. THEODORE SIMON, M. D.,
Secretary.

LOUISIANA STATE MEDICAL SOCIETY NEWS

H. Theodore Simon, M. D., Associate Editor.

LOUISIANA STATE MEDICAL MEETING.

The Fifty-first Annual Meeting of the Louisiana State Medical Society will be held in Shreveport, April 29 to May 1. The Chairman of the Committee on Arrangements, Dr. J. M. Bodenheimer, as well as the Chairman of the other Committees have arranged a most attractive program for the three-day session. The arrangements that have been made include an entertainment for the House of Delegates on Monday, April 28, at 12:30 P. M., at the Shriner's Hospital for Crippled Children. For the main body of the organization the Convention will start officially on Tuesday morning at 8:45 in the Washington-Youree Hotel, which will be the Convention Headquarters. Luncheon will be served this day by the Highland and North Louisiana Sanitariums. In the evening of the first day there will be the President's Reception, at which time the annual address will be given by the Honorable Robert H. Hunter. The next day luncheon will be tendered by the Tri-State and Schumpert Sanitariums and that evening the banquet will be held at the Washington-Youree Hotel. A golf tournament has been arranged for those who are interested in playing this game.

DR. FRANK T. GOUAUX,
President,
Louisiana State Medical Society.

A very extensive series of entertainments have been provided for the visiting ladies, who will be entertained at bridge parties, luncheons, garden parties and picnics.

The scientific program appears particularly interesting. An unusually fine selection of speakers has been made by the several sectional chairmen. The Louisiana State Medical Society is particularly fortunate in having some distinguished physicians from outside of the State as their guests. Dr. Walter C. Alvarez of the Mayo Clinic will speak on Puzzling Types of Indigestion, and Dr. Reginald Burbank of New York is also down on the program under the Section of Medicine. Dr. Hugh McCulloch of the Medical School of Washington University will appear before the Section on Pediatrics. Dr. W. Russell MacAusland of Boston will address the Section on General Surgery. From Baltimore will come Dr. David M. Davis, who will speak at the Section Meeting on Urology on Perineal Prostatectomy. Dr. E. B. Carpenter of Dallas will present some neurologic subject before the Section on Nervous Diseases. In addition to the scientific program, clinics will be held every day of the meeting at the Charity Hospital beginning at 7:00 o'clock in the morning. The combined social and scientific program are so attractive that undoubtedly they will appeal to a very large number of the profession in the State of Louisiana.

SHREVEPORT.

Accessibility, accommodations and entertainment make Shreveport the ideal convention city. Located in the extreme northwestern portion of the state the city is accessible from a tri-state territory that is adding to the prosperity of the city year by year. As the trade center of the people of north Louisiana, east Texas and south Arkansas, Shreveport in reality serves a population many times that found within the real city limits. Retail and wholesale interests regard this as one of the most valuable commercial assets in the economic make-up of the city.

A city of 100,000 Shreveport covers an area of 21 square miles. It is from 200 to 280 feet above sea level. The mean annual temperature is 68°. The maximum temperature in the summer time is 86° and the maximum in the summer 45°. An annual rainfall of 44 inches is found in Shreveport.

HISTORY

Much of Shreveport's early history is centered around her founder, Captain Henry Miller Shreve, from whom the city takes its name. Shreveport was founded in 1836 when Captain Shreve had headquarters at the present site of the city for his group of raft removers. Red River was unnavigable due to a raft that had formed in the river. Captain Shreve undertook to remove this raft recognizing the possibilities of the territory this river served. A huge old log trading post on a bluff overlooking the river known as Cane & Bennett's Bluff was the beginning of the settlement. Captain Shreve used this landing as headquarters while working on the river.

When the Caddo Indians, a peaceful tribe inhabiting all northwest Louisiana ceded their lands to the government by treaty they reserved a section for Larkin Edwards, who lived among them and had been their friend, protector and interpreter. It is from a grant by solemn treaty by this tribe that all real estate titles in Caddo Parish stem, and from a special reservation in this treaty in favor of their benefactor, Larkin Edwards—"though poor, he has never sent the red man away from his door hungry" reads the treaty—that all titles to all property in Shreveport's business district descend. The marks of seven Caddo chiefs were affixed to the treatey of this grant on July 3, 1835. The Caddo Indians peacefully removed their tepees in order that the log cabins of the white man might take their place. Nothing remains today to commemorate this friendship but the name Caddo Parish and Edwards street, a commercial thoroughfare of the city.

This site was sold in 1837 by Edwards to a company of seven men, who formed the Shreve Town Company. The purchase price was $5,000.00 and today the assessed valuation of the city is over $124,000,000.00.

An aerial view of the City of Shreveport.

Captain Shreve was one of the seven original purchasers of the city and undoubtedly played a leading role for the thriving little river port was incorporated in 1839 and named Shreveport. Historians are just beginning to recognize the importance of "this first great river captain" and during the past year or two historical books have paid considerable attention to Captain Shreve as a developer of the important inland waterway system of America.

Red River then took the lead in the building up of Shreveport. Steamboats plied their way up and down Red River with Shreveport as the most important port. It served as a feeder to New Orleans for the entire territory.

At the time of the Civil War Shreveport was a thriving town of 3,000 inhabitants doing a big trade with the vast fertile territory around. According to an unsubstantiated legend prior to the Civil War fifty wagon trains were used to do business with Mexico. The census of 1850 shows that Louisiana ranked sixth in the property per capital of the United States.

Shreveport was soon known as the second largest inland cotton market in the country and the city's supremacy in the cotton trade has continued augmented by the entrance into the city of seven important railroad lines.

PROGRESS TODAY

Shreveport possesses outstanding civic pride and evidences of this are resulting daily in the progress the city is making along civic development lines.

Among recent improvements and buildings of a civic nature in Shreveport is the Municipal Memorial Auditorium dedicated on Armistice Day, 1929, and built at a cost of $500,000.00 to the city. This has the largest seating capacity in the city. A half million dollar viaduct over a half mile in length serves as an uninterrupted traffic artery between the business and residential district. This serves 20 per cent of the motorists of Shreveport. The viaduct and auditorium, both costing approximately a half million dollars a piece, are two items in a two million bond issue voted by the city in 1926 for civic improvements.

AIRPORTS.

Two recent bond issues of far reaching importance were the voting of a $300,000.00 bond issue for the installation of a municipal airport. The land for this has already been bought and work begun on preparing the site. In a bend of the historic Red River will lie this municipal airport in a position already approved and commended by the foremost authorities in the United States Air Corps.

One of the biggest civic honors to ever come to Shreveport was the selection by the War Department of the United States of Shreveport as the location for the Third Attack Wing of the U. S. Air Corps. Indicative of the spirit of loyalty of the people of Shreveport was the voting last year of a bond issue of $1,500,000.00 for the purchase of 22,000 acres of Red River plantation land for the site of the future home of the Attack Wing.

Cities all over the south were with Shreveport in the competition for this coveted army post. Shreveport's victory was to the personal satisfaction of every citizen. The city is now completing the details of deeding over the last block of the tract. The initial investment of the government in this field, which will lie three and one-half miles from the city limits, will be eight million dollars. A complete community unit with all buildings necessary for a town of 3,000 will be built by the government.

BASIC PROSPERITY.

Shreveport draws its prosperity and progress from four basic economic interests: agriculture, manufacturing, lumber and oil and gas.

The territory around Shreveport is essentially agricultural and Caddo Parish leads the state in cotton production annually. Shreveport clears over twenty million dollars through its cotton market each fall as it serves as the buying and selling point for the tri-state area. While cotton is primarily the major crop, interest is being manifested and profitably manifested in diversified farm interests. Dairying is taking a strong hold on north Louisiana farmers.

Pecan orchards are coming into their own for Shreveport is the center of the largest paper shell pecan producing area west of the Mississippi river. The establishment of a government pecan experimental station in the vicinity just south of Shreveport will give considerable impetus to the industry.

The lumber industry is one of the oldest industries in the Shreveport territory dealing with natural resources. Approximately 50,000 cars of timber products originated in territory closely adjacent to Shreveport and clear through the city as a lumber market with a wholesale value of around $21,000,000.00.

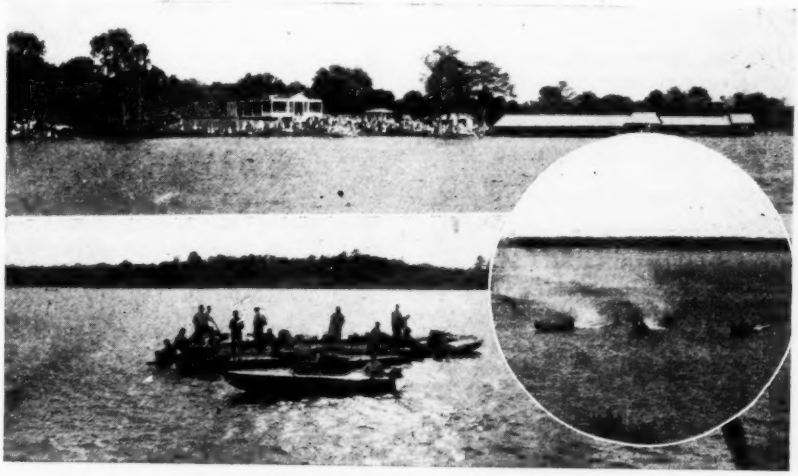
The first oil well was brought in in the Shreveport territory about twenty-five years ago and for the past fifteen years Shreveport has been an oil and gas capital of high rank in mid-continent producing circles. Dozens of fields have been brought in in the surrounding territory and much of Shreveport's prosperity and growth goes back to these successive developments.

THINGS OF INTEREST.

Shreveport has many things of interest to the visitor. The magnificent new Caddo Parish Court House is the heart of the city and never fails to attract attention. A unique feature is the parish jail located on the seventh and eighth floors.

The Shrine Hospital for Cripple Children is a beautiful institution, which will soon be still further improved. Seven miles out the Pines, a tuberculosis institution, is of interest. Four general hospitals with the Charity Hospital complete Shreveport's group of hospitals, namely, the Highland, Schumpert, Tri-State and North Louisiana.

Two country clubs, the Shreveport Country Club and the Broadmoor Club, are of interest to visitors, Cross Lake near the city is well worth an afternoon drive. Fort Humbug overlooking Red River is a spot of historic interest. The Shreveport Little Theatre, Dodd College and Centenary College are worth a visit. Caddo Lake with its bed dotted with oil derricks is twenty-two miles north of the city.



Views on Cross Lake at Shreveport. Speed boating is a popular summer sport.

PRESIDENTS' DINNER.

This annual function, so thoughtfully established by Ex-President Lester J. Williams at the Baton Rouge meeting, is being arranged for by the ex-presidents of Caddo Parish who are members of the Shreveport Medical Society. Dr. Oscar Dowling (1907), Dr. J. C. Willis (1915), Dr. J. E. Knighton (1921), and Dr. A. A. Herold (1927) will be the hosts at a stag dinner to be given at six o'clock on Monday, April 28. Invitations will soon be issued to the other "has beens," as well as to the president and the president-elect.

WOMAN'S AUXILIARY, LOUISIANA STATE MEDICAL SOCIETY.

It is urged all the wives of doctors, their sisters, daughters and mothers join. Those outside of Shreveport and New Orleans can make application direct with remittance of $1.25 annual dues to Mrs. H. B. Gessner, secretary-treasurer, 119 Audubon Boulevard.

At New Orleans Mrs. J. A. Stork is president.

At Shreveport Mrs. Robert G. (Esther C.) Douglas is president, and from here I have the following program:

Monday, April 28, the House of Delegates meet. There will be an evening bridge party at the hotel for those wishing to attend.

Tuesday, April 29:

10-12 A. M., Business meeting of Auxiliary. 1 P. M., luncheon at hotel. Address by Mrs. Allen Bunce, president of the Woman's Auxiliary of the American Medical Association. 4 P. M., Garden party. 8 P. M., Open meeting of the State Medical Society.

Wednesday, April 30:

1012 A. M., Business meeting of Auxiliary. 12:30 P. M., leave hotel for picnic luncheon to be followed by sight-seeing trip to radio station, "Kennonwood," and other places of interest. 3 P. M., Banquet. (Maybe dancing.)

MRS. OSCAR DOWLING, President.

NEWS AND COMMENT.

Professor George Portmann will give a five-week intensive post-graduate course in ear, nose, and throat surgery at the University of Bordeaux, France, commencing July 21, 1930. This course is open to American physicians.

For information apply to Dr. L. Felderman, Mitten Building, N. W. Co. Broad and Locust Streets, Philadelphia, Pa.

THE MONROE MEDICAL CLINIC.

A new medical clinic is to be erected in Monroe at a cost of $200,000. The Clinic building is to be of Spanish design, 135 by 180 feet, and will be three stories in height. It will contain 66 rooms completely equipped. The Monroe Medical Clinic, which has been incorporated, is composed of Dr. G. Q. Graves, Dr. A. G. McHenry, Dr. B. M. McKoin, Dr. A. D. Tisdale, Dr. E. J. Young and Dr. M. W. Hunter. Associated with them is Dr. Oscar Dowling, formerly president of the Louisiana State Board of Health. F. T. Doane is in charge of the roentgen-ray laboratory.

Covington, La., March 15, 1930.

The St. Tammany Parish Medical Society met last evening at the New Southern Hotel, Covington, in regular session with the following members present: Drs. Gautreaux, Maylie, F. F. Young, Stevenson, L. R. Paine, Lawrence Young and H. D. Bulloch. One guest present, Dr. L. G. Stirling of Baton Rouge.

The meeting was called to order by President Gautreaux and the minutes of the previous meeting were read and adopted.

The regular order of business was transposed to await the arrival of expected members before beginning the scientific program, and miscellaneous business was disposed of.

The question of inviting the Sixth District Medical Society to meet with us in the fall, was discussed, resulting in the society deciding to invite said society to meet with us. The chair appointed a committee to take the necessary steps to procure said meeting if possible. Other minor matters being disposed of, the society called on Mr. Story, a representative of the Petrolagar Laboratories, who was present, to present his moving picture, "Gall Bladder Work" by Ivey. The picture was well received and appreciated. Mr. Story was thanked by the chair for his courtesy. Meeting adjourned to meet in Slidell, April 11, 8 P. M.

H. D. BULLOCH, M. D.
Sec. and Treas.

At a meeting held at Patterson, La., the St. Mary Society elected the following officers: President: Dr. A. C. Kappel; Secretary-Treasurer: Dr. T. H. Gueymard; Delegate: Dr. T. H. Gueymard; Alternate: Dr. Lewis B. Crawford.

The meeting was held at the St. Mary's Hospital at Patterson and was climaxed by a most enjoyed luncheon prepared by the nurses. Dr. Crawford discussed several very interesting surgical cases of his of recent date. Our parish health doctor, Dr. R. L. Craig, was admitted to membership.

PARISH MEDICAL SOCIETY OFFICERS.

The following Parish Medical Societies have elected officers for 1930:

Avoyelles Parish: President, Dr. Kirby A. Roy Mansura; Vice-President, Dr. R. G. Ducote, Bordelonville; Secretary-Treasurer, Dr. S. J. Couvillon, Moreauville; Delegate, Dr. S. J. Couvillon, Moreauville.

Beauregard Parish: President, Dr. J. C. Miller, DeRidder; Vice-President, Dr. S. T. Roberts, DeRidder; Secretary-Treasurer, Dr. S. O. Turner, DeRidder; Delegate, Dr. T. R. Sartor, DeRidder; Alternate, Dr. J. C. Miller, DeRidder.

Caddo (Shreveport) Parish: President, Dr. R. G. Douglas, Shreveport; First-Vice-President, Dr. W. S. Kerlin, Shreveport; Second Vice-President, Dr. G. A. Caldwell, Shreveport; Secretary, Dr. W. B. Heidorn, Shreveport; Treasurer, Dr. J. R. Stamper, Shreveport; Delegates: Dr. R. G. Douglas, Dr. J. L. Scales, Dr. W. P. Butler, Dr. J. A. Hendrick, Dr. J. E. Knighton, Dr. C. R. Gowen, all of Shreveport; Alternates, Dr. G. A. Caldwell, Dr. A. A. Herold, Dr. J. C. Willis, Dr. W. J. Norfleet, Dr. D. L. Kerlin, Dr. J. G. Pou, all of Shreveport.

Jackson-Lincoln Bi-Parish: President, Dr. C. S. McDonald, Jonesboro; Vice-President, Dr. D. S. Calhoun, Ruston—from Lincoln Parish; Vice-President, Dr. W. M. McBride, Ansley—from Jackson Parish; Secretary-Treasurer, Dr. Marvin T. Green, Ruston; Delegate, Dr. W. S. Rutledge, Ruston; Alternate, Dr. J. J. Bennett, Ruston.

Lafayette Parish: President, A. J. Comeaux, Youngsville; Vice-President, Dr. L. A. Prejean, Scott: Secretary-Treasurer, Dr. W. J. Yongue, Lafayette; Delegate, Dr. R. D. Voorhies, Lafayette; Alternate, Dr. M. E. Saucier, Lafayette.

Sabine Parish: President, Dr. W. G. Allen, Converse; Vice-President, Dr. W. P. Perkins, Gandy; Secretary-Treasurer, Dr. D. Harvey Dillon, Many; Delegate, Dr. W. G. Allen, Converse; Alternate, Dr. Edgar Hull, Pleasant Hill.

St. Landry Parish: President, Dr. L. J. Bienvenu, Opelousas; Vice-President, Dr. J. N. Brown, Washington; Secretary-Treasurer, Dr. W. R. Lastrapes, Opelousas; Delegates, F. J. Mayer and Dr. Geo. R. Beridon, both of Opelousas; Alternates, Dr. E. LaFleur, Opelousas and Dr. Gordon Morgan, Melville.

Vermilion Parish: President, Dr. Leo. Saporito, Kaplan; Alternate, Dr. H. A. Eldredge, Abbeville.

The Tangipahoa Parish Medical Society was reorganized February 13, with the following officers for the ensuing year: Dr. E. L. McGehee, President; Dr. J. H. Galloway, Vice-President; Dr. W. T. Newman, Secretary-Treasurer. Dr. L. L. Ricks was elected delegate to the Louisiana State Medical Society Meeting April 28 to May 1; Dr. Louis B. Leggio, alternate.

The next regular monthly meeting will be held at Independence, Thursday, April 10.

The Chairman of the Committee on Arrangements of the Eleventh United States Pharmacopoeial Convention to be held in Washington, D. C., May 13, 1930, announces that the hotel headquarters are to be the Hotel Willard. Special rates have been made at this hotel as well as at the Raleigh, the Washington, the Hotel Powhatan and he Hoel Harringon.

Assistant Surgeon E. M. Gordon of the United States Public Health Service has been relieved from duty at the Marine Hospital, New Orleans and assigned to the Marine Hospital, Boston, Mass.

Dr. Randolph Lyons, head of the Department of Medicine, Graduate School of Medicine, The Tulane University of Louisiana, attended the meeting of the Interurban Clinical Club in Atlanta, Ga., March 22, 1930.

WEEKLY HEALTH INDEX.

During the week of February 15, there were 181 deaths in the City of New Orleans, with a death rate of 22. Twenty of these deaths were in children under one year of age, as contrasted with 11 in the corresponding week in 1929 in which week there were 10 deaths. During the week of February 22, the death rate fell to 19.7, the total deaths being 162 as contrasted with 199 in the corresponding week of 1929, when the death rate was 24.2. The same relatively low death rate was maintained during the week ending March 1. In this period there were 164 deaths, the death rate being 19.9 with 15 deaths in children under one year of age. In 1929 in this particular week the death rate was 18.6. In the next week which ended March 8 there were reported 182 deaths with a death rate of 22.1 with 12 deaths in children under one year of age. In the corresponding week of the previous year, the death rate was 21.4 with total deaths of 176.

UNITED STATES EXAMINATIONS.

The Civil Service Commission announces an open competitive examination for filling medical vacancies occurring in the Federal Classified Service throughout the United States. These include assignments in such departments as the United States Federal Bureau, Public Health Service, Indian Service, Panama Canal Service and Coast Survey Work. The competitors will not be required to report for examination but will be rated on educational training as thirty per cent and experience as seventy per cent. Details of this examination can be obtained from the Journal Office.

The Treasury Department announces the examination of candidates for commission as Assistant Surgeon with the regular corp, United States Public Health Service, to be held at New Orleans, May 5, 1930.

The United States Civil Service Commission also is announcing open competitive examinations for social workers (medical) trained nurses and trained nurses (psychiatric).

OPHTHALMOLOGICAL AND OTOLARYNGOLOGICAL SOCIETY.

The annual meeting of the Ophthalmological and Otolaryngological Society was held at the La Louisiane Restaurant on the night of January 16, 1930. The orator of the occasion was Mr. R. Van Chase, manager of the New Orleans Assocation of Commerce who spoke on "What the Association of Commerce Meant to Medicine in New Orleans."

After the banquet the following officers were elected:

Dr. William A. Wagner, President.

Dr. M. Meyer, Sect'y.-Treas.

MEETING OF WEBSTER PARISH MEDICAL SOCIETY.

The Webster Parish Medical Society held its quarterly meeting at the Minden Sanitarium, noon, March 12, 1930. Dinner was served the members, and after the hospital staff had been suitably thanked for the most excellent menu the regular order of business was followed. The attendance was good and four new members were admitted—Drs. W. C. Summer, P. H. Reed, J. E. Johnson, and B. W. Ward.

Dr. J. B. Benton was introduced to the society as the new president of the Fourth District Medical Society. Dr. W. C. Summer, Parish Health Officer, urged the continued reporting of notifiable diseases to his office. The members were urged to attend the meeting of the Tri-State Medical Society at Marshall, Texas, on March 20.

At the close of the business meeting, Dr. J. D. Kilgore read a paper on "Peritonitis," and Dr. V. W. Ward presented one on "The Intravenous Administration of Iso-Iodeikon With Notes On Conduct of Surgery of the Gall-Bladder." Both papers were fully discussed.

The doctors attending the meeting were: C. M. Baker, W. McDade, J. B. Benton, L. Longino, B. A. Norman, J. D. Kilgore, R. W. Smith, S. F. Martin, P. H. Reed, W. C. Summer, and B. W. Ward.

WILKINS McDADE,
Secretary and Treasurer.

THE PUBLIC AND MEDICAL CONVENTIONS

—Probably no professional men work harder or longer to acquire new knowledge than physicians. They are always at school. They are always exchanging discoveries, if not at conventions then through professional journals. The happy "hit" of one doctor becomes at once public property available to the hands of every colleague. They do not patent their inventions and mint the sufferings of mankind into cash. They are sentinels always on the watch and always eager to sound the alarm when a foe approaches or when an enemy can be beaten back.

Thus a medical convention is of greater interest to the community at large than a gathering of any other class of worker. They do not meet to create monopolies but to assemble free gifts for the world at large. A cancer discovery in Vienna —if it be true—increases the expectation of life in Saskatchewan, in the Malay States, in every land under the sun. The report of these conventions in the popular Press, couched in language understanded of the plain people, are of real and widespread educational value. To popularize medical knowledge is a public service. Nothing interests the everage man so much as his health, and to be able to read what the best doctors in the world are saying about the particular malady that menaces him is a priceless boon. Yet these reports could not be printed if the medical men did not meet in open conference and discuss their difficulties as well as their achievements within the hearing of humanity as a whole.—Editorial: Montreal Star. Reprinted in Canadian Med. Assn. Jour., 21:336, 1929.

MISSISSIPPI STATE MEDICAL ASSOCIATION NEWS

L. S. Lippincott, M. D., Associate Editor

HOTEL ACCOMMODATIONS FOR MEETING OF MISSISSIPPI STATE MEDICAL ASSOCIATION.

Dr. W. H. Parsons, chairman of the Committee on Hotels, has made the following announcement of hotel accommodations for the meeting of the Mississippi State Medical Association at Vicksburg on May 13, 14 and 15:

CARROLL HOTEL AND NATIONAL PARK HOTEL

Can accommodate 150 people in the two hotels. Rates: Without bath—Single $1.50; Double $2.00. With bath—Single $2.00 and $2.50; Double $3.00 and $3.50.

HOTEL VICKSBURG.

60 Rooms. Rates: Single $3.00; Double $5.00. Corner rooms with twin beds $5.50.

NEW WASHINGTON HOTEL

50 Rooms. Rates: Without bath—Single $1.00 and $1.25; Double $1.50 and $2.00. (Include use of shower baths on each floor).

With bath—Single $2.00; Double $3.00.

Members of the Association are urged to make reservations at once, indicating hotel of choice and accommodations desired. Address Dr. W. H. Parsons, Vicksburg Hospital, Vicksburg.

TRI-COUNTY MEDICAL SOCIETY.

Dr. J. R. Markette, Secretary, reports that the regular meeting of the Tri-County Medical Society was held at Wesson on March 11, with an unusual attendance. Much interest was manifested in the excellent program presented.

The guests of honor were Doctors W. A. Dearman, Gulfport; E. C. Mitchell, Memphis, and J. J. Shea, Memphis. The talks presented were "Focal Infections as an Impairment to Life's Work," "Vaccines and Antitoxins," and "Acute Sore Throats with Special Reference to Vincent's Angina."

SOUTH MISSISSIPPI MEDICAL SOCIETY.

Dr. C. C. Hightower, Hattiesburg, reports that the meeting of the South Mississippi Medical Society was held at the Masonic Temple, Hattiesburg, on March 13. The program was as follows:

1. Treatment of Hemorrhoids by the Injection Method.—Dr. G. C. Terrill, Prentiss.

Discussed by Drs. A. B. Harvey and P. E. Smith.

2. Summer Diarrhea in Infancy and Early Childhood.—Dr. Robert A. Strong, Professor of Pediatrics, Tulane University, New Orleans. Discussed by Drs. H. L. McKinnon and L. L. Polk.

3. Diagnosis of Appendicitis, Acute and Chronic.—Dr. C. C. Hightower, Hattiesburg.

4. An Inquiry into the Cause of the Chronic Appendix.—Dr. Urban Maes, New Orleans.

The above papers were jointly discussed by Drs. L. H. Martin, H. G. McCormick, T. E. Ross, Sr., and R. H. Foster.

5. A Paper.—Dr. R. E. Schwartz.

A business meeting was held at 3 p. m. and dinner was served at 6:30 p. m.

RUSH'S INFIRMARY.

The regular monthly meeting of the staff of Rush's Infirmary, Meridian, was held on March 7, with 22 members present. The scientific program included the folowing:

Toxemias of Pregnancy.—Dr. H. Lowry Rush.

Discussed by Drs. T. E. Royals, W. W. Reynolds, H. S. Gully and T. D. Bourdeaux.

Presentation of a case of Hyperemesis Gravidarum.—Dr. E. L. Richardson, Louisville.

At the conclusion of the meeting, a plate lunch was served.

DOCTOR OLYN FLOYD PARKES.

Dr. I. W. Cooper, Meridian, writes as follows: "It is with the keenest regret that I report the death of Dr. Olyn Floyd Parkes, Louisville, Mississippi, which occurred in Memphis on March 5, 1930. Dr. Parkes was a doctor who lived up to the traditions of the profession. He was a high-toned Christian gentleman in every sense of the word, and the ethics of our profession was his guide. It was the writer's privilege to be with him at the last meeting of the Southern Medical Association at Miami, and to be with him on a trip to Cuba and return following this meeting. I have never known a man whose company was more enjoyed. He was so kind and sweet to Mrs. Cooper on this trip that we can never forget him. Our deepest sympathy goes to his lovely little wife and two children, and to his devoted father and mother, Dr. and Mrs. W. W. Parkes, who made so many sacrifices in order that he might get the education which he so thoroughly took. His presence, his smiles and his councils will be sadly missed in our Association."

Dr. Olyn Floyd Parkes was 35 years of age. He was a graduate of Jefferson Medical College of Philadelphia in the class of 1919.

NORTH MISSISSIPPI SIX COUNTY MEDICAL SOCIETY.

Dr. A. H. Little, Secretary, announces that the next meeting of the North Mississippi Six County Medical Society will be held at Oxford, Wednesday, April 16. Visiting physicians are always welcome. By attending this meeting the Doctors of Mississippi will have an opportunity of enjoying both a medical program and seeing their new university buildings.

FROM MERIDIAN.

Dr. I. W. Cooper, Meridian, reports the following:

"Drs. J. H. and L. V. Rush have just returned from New Orleans where they spent several days on a pleasure trip.

"Dr. Thomas B. Bourdeaux has been elected chief medical director of the Southern Central Life Insurance Company which has just been organized in this city.

"Herewith you will find enclosed a copy of the program of the staff meeting of the Anderson Infirmary of this city. This program was very much enjoyed by everyone present and the scientific discussions were a great benefit to each and every one attending. I might add that all three of the hospitals in this city, viz., Anderson Infirmary, Meridian Sanitarium and Rush's Infirmary are all having wonderful meetings and when one goes to all of these meetings and hears the wonderful papers and the discussions, he soon realizes how little he knows and how his knowledge is limited. It is the writer's privilege to be invited to all of these staff meetings and I look forward with a great deal of pleasure to each and every one of them.

"Dr. K. T. Klein spent several days in New Orleans during the first part of March doing postgraduate work.

"Dr. T. E. Jarvis, Newton, former president of our society, is in New Orleans doing postgraduate work in diseases of children.

"On Tuesday, March 11, Dr. F. G. Riley had the formal opening of his Children and Maternity Hospital and Clinic. During the day this institution was visited by many hundreds of Meridian people and those from the adjoining territory. The writer spent several hours in the hospital on that day and the expressions heard as to the beauty and magnificence of this hospital certainly should be very gratifying to Dr. Riley and his corps of excellent nurses. This hospital is the final word in hospitalization for sick babies and for maternity patients. This institution can take care of over twenty patients and every convenience and every scientific apparatus is there for the treatment of sick children. It would do the pediatricians from all over the state good to visit this institution and see the kind of work Dr. Riley is doing and also see this magnificent hospital.

"Dr. and Mrs. S. H. Hairston with their son, Jack, have just returned from Washington where they attended the National Boy Scout meeting, at which meeting President Hoover made an address. They report a very enjoyable time.

"Dr. George W. Bounds, eye, ear, nose and throat specialist of this city, is building a beautiful home which he expects to occupy within the next thirty days.

"Dr. J. T. Googe, director of the Lauderdale County Health Unit, is building a lovely home which he will move into in about sixty days. We hope that this means Dr. Googe will be here permanently in public health work. He has made good and is getting harmonious support from all the physicians in Lauderdale County. They fully realize his worth and the good work his is doing.

"Dr. H. S. Gully, dean of the profession in this section, is now president of our medical society and the programs he is giving us are certainly wonderful and enjoyed by each and every one of us.

"I noticed in the letter which you sent out a few days ago that you were anxious to have a report of any births which happened to any of the doctors in this territory. I am very sorry to say that I have none to report and I think we are going to have to wait on Dr. Walter Holliday for the next one. There are no signs or indications at the present time which will justify the hopes of an early report of any births.

"You will herewith find enclosed report of the last staff meeting of Rush's Infirmary. This meeting was very enjoyable and a great benefit to all of those who attended."

NORTHEAST MISSISSIPPI THIRTEEN COUNTY MEDICAL SOCIETY.

Dr. James M. Acker, Jr., Secretary, reports the regular quarterly meeting of the Northeast Mississippi Thirteen County Medical Society held at Booneville on March 18. The program was as follows:

1. Meeting called to order.—Dr. K. F. McRae, President.

2. Invocation.—Rev. J. D. Thompson.

3. Reading and adoption of minutes of the last meeting.

4. Pyelitis.—Dr. F. L. McGahey, Calhoun City. Discussion opened by Drs. R. M. Boyd and C. B. McCown.

5. Rhinitis in Children.—Dr. S. L. Stephenson, Corinth. Discussion opened by Drs. Carr and E. K. Guinn.

6. The Relation of Organized Medicine to the Physician and his Obligation to it.—Dr. Hugh Gamble, Greenville, President, Miss. State Medical Association.

7. The Prevalence and Treatment of Gonorrhea.—Dr. W. W. Strange, Booneville.. Discussion opened by Drs. M. M. McMillian and M. W. Robertson.

8. Business Session.

9. Banquet 6 P. M., Dining Hall of Methodist Church, under auspices of Methodist Missionary Society. Banquet Orator—Dr. Seale Harris, Birmingham, Ala., "Conserving the Health and Prolonging the Life of the General Practitioner."

Music, Booneville Band.

The next meeting of the Society will take place at Houston on June 17.

TATE COUNTY MEDICAL SOCIETY.

Dr. J. Sidney Eason, Secretary, writes: "Am sorry, but there is no news whatever of any interest; no medical meetings; no hospitals. Following are the officers of the Tate County Medical Society for 1930: Dr. W. D. Smith, Senatobia, President; Dr. H. L. Murphey, Arkabutla, Vice-President; Dr. H. F. Byers, Senatobia, Delegate to the Mississippi State Medical Association; Dr. J. Sidney Eason, Secretary and Treasurer.

"We have one new doctor in the county, Dr. H. S. Phillips of Coldwater, since my last report to the Journal. Births and deaths for February not yet reported."

CHILDREN AND MATERNITY HOSPITAL AND CLINIC.

Dr. F. G. Riley, Meridian, has announced the opening of his Children and Maternity Hosptal and Clinic, corner of 11th Street and 21st Avenue, Meridian. The building is especially constructed and equipped for the diagnosis, treatment and care of all types of sick infants and children, as well as for the care of maternity cases. The operating and delivery rooms are fully equipped for any surgical procedures. A corps of registered nurses, especially trained in this work, will be in charge. An all-time technician will be in charge of the clinical laboratory and physiotherapy department. The hospital will be open to any reputable physician or surgeon.

Dr. Riley, who is physician in charge, will limit his practice as in the past, to the diseases of infants and children, and will maintain offices in the hospital and clinic building. Miss Hettye Ellzey, R. N., is superintendent. Frank Fort was the architect for the new building.

ENTERTAINMENT OF STATE ASSOCIATION

Dr. Edley H. Jones, chairman of the committee of the Issaquena-Sharkey-Warren Counties Medical Society on entertainment of the Mississippi State Medical Association, gives the following outline of the features that will be provided for the pleasure of the members of the State Association during the meeting in Vicksburg, May 13, 14 and 15:

GOLF.

We will have an eighteen-hole golf tournament open to all members and guests of the association. The only requirements are that they shall be practicing physicians and that they shall be registered. No entrance fee will be charged. The rules will be those commonly enforced in tournament play. All score cards must be turned in by 12:00 o'clock noon, Wednesday, May 14, so that any ties may be played off during the afternoon. Suitable trophies will be provided and will be presented at the barberue Wednesday niyht.

AUTOMOBILE RIDES.

Vicksburg has a very beautiful Military Park. The visitors would probably like to see this and might also be interested in the bridge across the Mississippi here. For the pleasure of those who would like to see these features, automobile rides will be provided from four to six p. m. on Tuesday and Wednesday afternoons. At the time of registering each registrant will be given a ticket, which will entitle him, or her, to an automobile ride during these hours, in groups of carloads.

FISHING.

Vicksburg is located in the center of one of the best fresh water fishing districts in the world. The famous Eagle Lake is only about twenty miles distant; should any of the visitors wish to go fishing, the chairman of the entertainment committee will be pleased to make arrangements for parties. Those interested have only to write to Dr. Edley H. Jones, Vicksburg, Mississippi.

STEAMBOAT RIDE.

On Wednesday between the hours of 12:30 and 2.00 p. m. a steamboat ride will be furnished for the pleasure of our guests. The tour will include the waterfront, Lake Centennial, the

site of the Mississippi River bridge, and a ride on the river. Refreshments and music will be provided.

BARBECUE.

On Wednesday night a barbecue will be given. It will be held at the site of historic Fort Nogales. Transportation will be provided. Elaborate preparations are being made for a combination barbecue and fishfry. The menu includes fish, barbecued beef, mutton and pork, meat balls and spaghetti, slaw, tomatoes, pickles, bread, iced tea, lemonade and coca-cola.

BOXING AND WRESTLING MATCHES.

The entertainment feature of the barbecue will be a boxing and wrestling program. There will be one good boxing match, one good wrestling match and a "Battle Royal."

ANDERSON INFIRMARY.

The regular monthly staff meeting of the Anderson Infirmary was held on March 14 with the following program.

1. Call to order by the President—promptly at 6:30 p. m.

2 Reading of minutes of the last meeting.

3. Business of the Staff.

4. Reports from the Records Department and analysis of the work of the hospital.

5. Special case reports and papers:

1. Four case of pseudo paralysis with demonstration of cases—Dr. W. Jeff Anderson—

Dr. T. G. Cleveland.

2. The diagnosis and treatment of mild depressions—Dr. C. S. Holbrook, New Orleans, Louisiana.

6. Recommendations for improving the service of the hospital.

7. Adjournment.

Plate lunch.

Dr. Hugh H. Johnston, Vicksburg, left March 22, to take up a fellowship in oto-laryngology at the Mayo Clinic, Rochester, Minnesota. Dr. Johnston, a son of Dr. S. W. Johnston, is a graduate of Vanderbilt University in the class of 1928 and since graduation has been house physician at the Vicksburg Sanitarium.

MEETING OF MISSISSIPPI STATE MEDICAL ASSOCIATION.

Dr. Sidney W. Johnston, general chairman of the host society committee for the meeting of the Mississippi State Medical Association at Vicksburg on May 13, 14 and 15, makes the following announcement:

"A very full program for the 63rd Annual Session of the Mississippi State Medical Association has been outlined by the Isaquena-Sharkey-Warren Counties Medical Society.

A part of this program is given herewith:

"A registration bureau will be located in the lobby of the Y. M. C. A. Building which is located at the corner of Clay and Monroe streets and just one door east of the Hotel Vicksburg, and registration will start at 8 a. m., Tuesday, May 13. Committee from the Woman's Auxiliary, as well as the Isaquena-Sharkey-Warren Counties Medical Society will be in attendance at the registration bureau. From 8 o'clock Tuesday morning until late Thursday night automobiles will be parked near the Y. M. C. A. building for the use of any of the members or their wives. A card entitling each visitor to all the privileges of the Elks Club and the Y. M. C. A. building, with its swimming pool and shower baths, will be deliverd to him or her in registration. An automobile sticker signed by the mayor of Vicksburg will entitle the holder to park his car at any place and for any length of time he cares to. The mayor assures the Association that his entire police force will do all in its power to help make the visitors have a good time.

"Fishing parties to Eagle Lake and other lakes will be provided transportation and privileges. A trip to the new eight million dollar Mississippi River Bridge, which will be completed on May 1, will be provided each visitor, also a trip through the National Military Park, which President Roosevelt declared the most beautiful in America. A golf tournament will be provided for the 'Golf Bugs.' Vicksburg boasts of one of the most complete and beautiful golf courses in America. A complete program of the Woman's Auxiliary and the Entertainment Committee are printed elsewhere.

"Visiting doctors are urged to bring their wives with them, and the Women of Vicksburg will be greatly disappointed if there are not a large number present.

"At the meeting Tuesday night to which the public is invited Mayor W. J. Hossley will deliver the address of welcome on behalf of the city and will turn over the key to the city. Dr. L. J. Clark, president of the Issaquena-Sharkey-Warren Counties Medical Society, will deliver the address of welcome in behalf of the Society. Rev. Gordon Reese will invoke divine blessings on the meeting and Mrs. Maimo Minter and

Mrs. Lane Busick will each render a musical number.

"Vicksburg will welcome the Mississippi State Medical Association with all the hospitality that a Southern city can show and every man and woman in it is anxious to show some attention to the visiting doctors and their wives. The committee hopes that the 63rd Annual Session will be the most successful and largest attended in the history of the Association."

OFFICIAL PROGRAM

WOMAN'S AUXILIARY
MISSISSIPPI STATE MEDICAL
ASSOCIATION.

MAY 13-14-15, 1930

VICKSBURG

Tuesday, May 13—

Registration at Y. M. C. A.
(Everyone is requested to register).

10:00 A. M.—

Executive Board Meeting—Monroe Room. Hotel Vicksburg.

4-5:30 P. M.—

Saenger Theatre and Drive Through Vicksburg National Park.

5:30 P. M.—

Tea at National Park Golf Course.

Wednesday, May 14—

9:30 A. M.-12—

General Business Meeting—Coral Room. Hotel Vicksburg.

12:30-2:00 P. M.—

Boat Ride Mississippi River, Steamer George Miller, Lunch.

2-5:30 P. M.—

Saenger Theatre and Automobile Rides.

7:30 P. M.—

Barbecue—at Fort Nogales.

Thursday, May 15—

9:00 A. M.—

General Session—Coral Room, Hotel Vicksburg.

10:00 A. M.—

Election of Officers.

ISSAQUENA-SHARKEY-WARREN COUNTIES MEDICAL SOCIETY.

The regular monthly meeting of the Issaquena-Sharkey-Warren Counties Medical Society was held on March 11, with twenty-two in attendance.

Scientific Program:

1. Discussion of Osteomyelitis, with Case Reports.—Dr. J. A. K. Birchett, Jr. Discussed by Drs. H. H. Johnston, E. F. Howard, and W. H. Parsons.

2. Some Observations on the Recent Meeting of the American College of Physicians.—Dr. L. J. Clark. Discussed by Drs. R. H. Foster, S. W. Johnston, H. H. Haralson, J. A. K. Birchett, Jr., G. W. Gaines, and F. M. Smith.

The Committees to arrange for the meeting of the Mississippi State Medical Association in Vicksburg in May, reported and active preparations are now under way.

The Society adopted resolutions favoring a generous appropriation by the Legislature for the Mississippi State Board of Health and ordered copies sent to the Governor, the President of the Senate, and the Speaker of the House.

The Committee on Public Health and Legislation was instructed to prepare resolutions opposing any change in the present narcotic laws so far as they apply to physicians. These resolutions are in protest against the passage of the Porter bills now before Congress.

The meeting closed with a Dutch lunch.

SCIENTIFIC EXHIBITS.

A committee of the Issaquena-Sharkey-Warren Counties Medical Society is arranging for a scientific exhibit at the meeting of the Mississippi State Medical Association this year at Vicksburg. This is an innovation which it is believed will add much to the interest of the meeting. Hospitals and physicians of the state are being requested and urged to have a part in this feature. The committee is made up of Dr. E. F. Howard, chairman, Vicksburg; Dr. F. M. Smith, secretary, and Dr. M. J. Few, Rolling Fork.

VICKSBURG SANITARIUM.

The regular meeting of the staff of the Vicksburg Sanitarium was held on March 10. The following special case reports were presented:

1. Fracture of the Pelvis with Rupture of Bladder.—Dr. G. M. Street.

2. Femoral Arterial Perivascular Sympathetic Neurectomy for Obliterating Endarteritis with Threatened Gangrene.—Dr. A. Street.

3. Carcinoma of the Thyroid.—Dr. J. A. K. Birchett, Jr.

4. Sarcoma of the Ovary.—Dr. H. H. Johnston.

Special Reports: The recent meeting of the American College of Physicians at Minneapolis. —Dr. L. J. Clark.

Slected radiographic studies were demonstrated as follows: Pulmonary Tuberculosis; Lung Abscess; Tumqr of Mediastinum; Atheroma of Iliac Vessels Simulating Ureteral Calculi; Osteomyelitis of Femur; Old Fracture of Femur; Fracture of Body of 6th Dorsal Vertebra.

At the colse of th meeting lunch was served.

MERIDIAN SANITARIUM.

The monthly meeting of the Staff of the Meridian Sanitarium was held February 20. The program included the following:

Ruptured Ovary and Extra-Uterine Pregnancy. —Dr. A. C. Bryan.

Purpura Hemorrhagica Following Scarlet Fever.—Dr. F. G. Riley.

Intracranial Hemorrhage in the Newborn.—Dr. W. W. Reynolds.

Hospital Report for the Month of January.—Dr. S. H. Hairston.

Lunch was served.

SOME HIGH LIGHTS IN MISSISSIPPI MEDICAL HISTORY.*

(*Facts gathered from a History of the Mississippi State Medical Association, published in 1910).

At the 1880 meeting in Vicksburg, the executive committee reported that it had attempted to secure from the Legislature a law not only incorporating the Association, but making it the board of examiners and licensing body to regulate the practice of medicine in the State. This proposed law had been introduced in the Senate at the previous session of the Legislature and referred to its committee on judiciary, in which committee it was allowed to sleep until the session was over. The committee presented a draft of the bill for comment and approval. This report was accepted and the matter left in the hands of the committee, which was by no means idle, for it reintroduced the subject the next year, at the meeting 1881 in Winona, urging strongly the need of a medical practice act and requesting the members to bestir themselves and assist in efforts to procure such legislation. The committee at the Oxford meeting in 1882 formally presented the results of its labors in the shape of a medical practice act that had been passed a few months previously by the Legislature.

BOOK REVIEWS

The Laboratory Methods of the United States Army: Edited by Charles F. Craig, M. A., M. D. Philadelphia, Lea & Febiger. 1929. pp. 696.

This volume contains the laboratory methods which are used in the laboratories of the medical department of the Army and at the Army Medical School. It succeeds the first two editions of the Manual Laboratory Methods of the United States Army which were known as Medical War Manual No. 6. The material of these earlier manuals has been thoroughly revised and extensive additions have been made, especially in the sections on Protozoological Methods, Helminthological Methods, Entomological Methods, and Veterinary Laboratory Methods. It is thoroughly modern and contains directions for the most recent additions to laboraory diagnostic procedures. For example, there is a section of several pages devoted to the laboratory methods for diagnosis of tularemia. Each procedure is described in detail in a clear direct style which is very helpful. Full directions are given for the making of the necessary stock solutions and media, the methods of use of the various pieces of laboratory apparatus, for example the autoclave and colorimeter, and the proper care of these instruments is given. The book is bound in a flexible leatherette cover, and is of very small dimensions. The type is of a size which makes very easy reading. All told, it is a book which will be of interest and value to the doctor who is interested in clinical pathology.

ADELAIDE MARY ZOELLER, M. D.

Surgical Diseases of the Thyroid Gland: By E. M. Eberts, M. D., R. R. Fitzgerald, M. D., and P. G. Silver, M. D. Philadelphia, Lea & Febiger. 1929. pp. 238.

The authors have given us a monograph in this little volume which is almost perfect. It is surprising to see that such a broad subject has been so completely covered in such a short space. They give a concise but full description of the anatomy and physiology and then one by one take up the various clinical abnormalities encountered. Their discourse on juvenile goiter is of particular interest, whilst such subjects as Graves' disease, iodine thyrotoxicosis, toxic and non-toxic adenomata, as also the late colloid goiters, inflammations of the gland, and malignant diseases are briefly but quite adequately covered. The subjects are discussed in such a way that only the

every day salient and practical features are given. It is written in easy style and is therefore a pleasure to read. The reviewer recommends it very highly.

FRANK L. LORIA, M. D.

Diseases of the Chest and the Principles of Physical Diagnosis: By George William Norris, A. B., M. D., and Henry R. M. Landis, A. B., M. D., Sc. D., with a Chapter on the Transmission of Sounds Through the Chest, by Charles M. Montgomery, M. D., and a Chapter on the Electrocardiograph in Heart Disease, by Edward B. Krumbhaar, Ph. D., M. D. 4th Ed., Revised. Philadelphia, W. B. Saunders Company. 1929. pp. 954.

This text book has always commanded universal admiration and respect. This new edition which represents practically a rewriting is quite up to the standard hitherto set. The new material that has been added is extensive and has brought the text up to date.

The authors have held fast to their original plan to write a book that was meant for the clinician and in which clinical mehods have been especially emphasized. They have not failed to put before the student body and clinician all that is new and helpful, but in doing this they have held firmly to all that is well established in the old and well tried methods. In its field there is no book in whose possession the student can take greater pride or find greater usefulness.

I. I. LEMANN, M. D.

Blood Grouping in Relation to Clinical and Legal Medicine: By Laurence H. Snyder, Sc. D. Baltimore, The Williams & Wilkins Company. 1929. pp. 153.

In this little volume Professor Snyder has thoroughly reviewed the literature on the subject and added the results of his own extensive researches. Any one interested in this subject will find this a source of all the information necessary. Especially interesting and informative is the data concerning blood matching, grouping and the medico-legal applications of the same. It is shown that certain workers have found that the blood groups were inherited as two independent pairs of mendelian factors, the iso-agglutinogens A and B being dominant to their respective iso-agglutinins a and b. On this basis a specific agglutinin could not appear in a child unless it was present in at least one of the parents. This last fundamental observation has never been seriously questioned to the present day, although the assumption of two independent pairs of factors to explain it seems no longer warranted. When once the hereditary behavior of a pair of human characters is understood, it is entirely possible, according to the author, to make a practical application of this knowledge in cases of disputed parentage.

S. J. LEWIS, M. D.

The Treatment of Diabetes Mellitus With Higher Carbohydrate Diets: A Textbook for Physicians and Patients: By William David Sansum, M. S., M. D., F. A. C. P., Percival Allen Gray, Ph. D., M. D., and Ruth Bowden, B. S. New York, Harper. 1929. pp. 309.

This small book differs from the usual so-called guide or primer for physicians and patients in that it covers considerable controversial ground. Dr. Sansum's well known views about the use of high carbohydrate diets in diabetes and the effect of acid-ash producing diets in causing arteriosclerosis are not universally accepted. His experience has, however, done much to liberalize the diet of diabetics, and even those who do not follow him entirely will agree that his published results are interesting and stimulating.

The reviewer's experience has been that it is frequently difficult to keep down the weight of diabetics taking diet with much fewer than the estimated caloric requirement and that this is true even where the fat intake is held down to a point equally as low as that recommended by Dr. Sansum. Whether a liberal carbohydrate diet will help gradually to stimulate the pancreas to regeneration is still an open question. There is much to suggest that this is the case.

Dr. Sansum's book is clearly written and quite interesting. It can be recommended to physicians who are interested in the controversy concerning the diet, to physicians who plan to follow Dr. Sansum's views and particularly to patients who have been either in Dr. Sansum's sanitarium or one modeled after it. The book would be confusing if placed in the hands of the usual patient who has not had the benefit of Dr. Sansum's training or some similar training. It shares in this respect the objection to be leveled at many of the other primers, namely, that it is not sufficiently simple.

I. I. LEMANN, M. D.

The Medical Museum: By S. H. Daukes, M. D., D. P. H., D. T. M. & H. The Wellcome Foundation Ltd. 1929. pp. 172, frontispiece and 44 figs.

"The Medical Museum" is not to be passed by after a glance at the title, and dismissed with the false impression that its contents will appeal only to picklers of specimens! As a matter of fact the subject matter may be characterized as a contribution to medical education—applying particularly to formal instruction in the schools and the lay health campaign.

Doctor Daukes, director of the Wellcome Museum of Medical Science in London, has written a succint account of this exemplar of modern museum organization. Those who are denied the opportunity to visit the institution may yet secure truly vivid impression of the exhibits, many of which are illustrated by excellent photographs. The policy governing the assembling of exhibits and the technical aspect of their preparation and arrangement are discussed. The addition of an extensive bibliography adds to the value of the work as a handbook of model museum policy and methods.

The outstanding distinction of the Wellcome Museum consists in its synoptical arrangement, each exhibit telling a connected story of conditions of disease. The primary classification of the collections separates the main etiological agencies; thus diseases of bacterial origin, food deficiencies, endocrinopathies and the like form the main divisions of the exhibits. Each division is introduced, wherever possible, by displays of main factors in causation. Within the division each disease is representing by display illustrating its specific etiology, pathology, symptomatology, treatment and prevention. The displays are made up of a wide variety of materials: photographs, paintings, radiographs, temperature charts and other graphic clinical records, statistical charts, cultures of organisms, models, pathological specimens, etc., all instructively arranged and labeled. A noteworthy advantage is derived from the synoptical arrangement. A disease is considered as an entity, rather than a condition to be parcelled out to the several basic sciences and clinical approaches which share in elucidating the whole. The Wellcome Museum may well serve as a guide for the construction of medical museums, however modest in scale; its example, moreover, should be of some service in stimulating "synoptical teaching"—outside the museums.

HAROLD CUMMINS, Ph. D.

Mammalian Physiology: By E. G. T. Liddell, D. M. and Sir Charles Sherrington, O. M. 2nd ed. Oxford, The Clarendon Press. 1929. Fig. 6, Text-Fig. 50, pp. 162.

The first edition of this book was of great help to the present reviewer some ten years ago in the preparation of a laboratory outline in which experiments on mammals were included as well as the traditonal work on the frog and turtle. The observations here outlined are presented in clear fashion, operative details described and often pictured, the diagrams being so good that wall charts for the aid of students performing the experiments have been made of several of them.

The changes in the new edition involve a few omissions, most of which are relegated to a group at the end which may be performed on repetition of the experiments, rearrangements and rewriting of parts of experiments and the addition of a few new ones on: circulatory changes and kidney volume, the preparation of secretin, the stretch reflex, the inhibitory action of the cerebellar cortex, the effect of spinal transection on decerebrate rigidity, a comparison of motor and reflex tetanus, and the protective mechanism against bacterial invasion.

The book will prove of interest to the physician who took his physiology years ago, by showing the much more interesting and valuable type of laboratory work now being pretty generally done as part of the teaching of this discipline. The teacher of physiology will be glad to have the description of the new experiments and the experimenter will find much of value in the way of suggestive aid in the carrying out of certain observations.

An interesting feature is the inclusion of graphs obtained by former students illustrative of the kind of results to be expected.

HENRY LAURENS, Ph. D.

PUBLICATIONS RECEIVED.

W. B. Saunders, Philadelphia and London: Surgical Diagnosis, edited by Evarts Ambrose Graham, A. B., M. D. Volumes I and II.

Charles C. Thomas, Springfield, Illinois and Baltimore: The Bacteriophage and Its Clinical Applications, by F. D. Herelle.

H. K. Lewis & Company, London: Nasal Catarrh, by W. Stuart-Low, F. R. C. S. (Eng.).

C. V. Mosby Company, St. Louis: A Textbook of Physiology for Nurses, by William Gay Christian, M. D. and Charles C. Haskell, B. A., M. D.

D. Appleton and Company, New York and London: Insomnia—How to Combat It, by Joseph Collins, M. D.

Lea & Febiger, Philadelphia: Rickets, Osteomalacia and Tetany, by Alfred F. Hess, M. D.

P. Blakiston's Son & Co., Philadelphia: Clinical Atlas of Blood Diseases, by A. Piney, M. D., M. R. C. P., and Stanley Wyard, M. D., M. R. C. P.

Paul B. Hoeber, Inc., New York: Surgery at the New York Hospital, One Hundred Years Ago, by Eugene H. Pool and Frank J. McGowan.

Oxford University Press, New York and London: A Text-Book of Psychiatry, by D. K. Henderson, M. D. (Edin.), F. R. F. P. S. (Glas.) and R. D. Gillespie, M. D. (Glas.), M. R. C. P., D. P. M. (Lond.).

National Research Council, Washington, D. C.: Bulletin of the National Research Council, Number 73. A Survey of the Law Concerning Dead Human Bodies, by George H. Weinmann.